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The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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EDITORIAL NOTES.

1921.

We wish a happy and prosperous New Year to all our readers trusting that it will witness an early recovery of the Tea and Rubber markets, and a return of prosperous times for coffee.

Planters' Labour Act.

A Gazette notification says, under section 4 of the Madras Planters' Labour Act 1903, the Governor in Council is pleased to authorize Mr. Charles Ernest Crawford Walker, Planter, Jessie Estate, Manantoddy to attest the execution of labour contracts.

Coffee Trade Association.

We are informed that the Coffee Trade Association of London have issued a circular, dated 19th November, advising that after the 1st January 1921 the brokerage on coffee sold at public auctions will be 1% instead of ½%.

Increase of Subscriptions to the U P. A. S. I.

There seems to be some doubt as to the interpretation of the Resolution of the General Committee passed on 6th December last, which reads :—"That the rates of subscription on all products be increased by two annas per acre." This increase is for the current financial year, and is being levied this year as a single extra payment in addition to the usual quarterly payments. District Associations have been asked to include this extra two annas per acre with their subscriptions for the current (i.e., 3rd) quarter. Members who have already paid their third quarter's subscription are requested to remit this extra amount through their District Associations as soon as possible.

Ceylon Tea

According to the "Ceylon Chamber of Commerce" Weekly Price Current, dated 15th November, 6th and 13th December, 1920, the following quantities of Ceylon Tea have been exported by rail *via* Talaimannar to various destinations in S. India :—

	lbs.
Calicut	1,215
Trichur	400
Madras	1,020
Tinnevelly	49
Mangalore	1,400
Parappanangadi	160
Madura	250
Ramnaad	158
Total	4,652

Coffee.

Latest advices from home show that better qualities have been quite steady, but lower grades were in buyers' favour. The improvement in Continental Exchanges has led to more demand for export. "The Produce Markets Review" says, good business can be reported in Mysores, but it is difficult to get the offer of anything fine, parcels of this description being in dealers' hands.

London Coffee Returns.

	Home Consumption.		Export.		Stock.	
	1920.	1919.	1920.	1919.	1920.	1919.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
For week ended November 27 ...	327	289	258	253	20,785	21,207
For 48 weeks ended Nov. 27 ...	15,723	16,813	12,918	18,278	...	...

Rubber Stocks.

There were 43,400 tons of rubber in stock in London on November, 11th.

ANAMALLAI PLANTERS' ASSOCIATION.

MINUTES OF AN EXTRAORDINARY GENERAL MEETING OF THE ANAMALLAI PLANTERS' ASSOCIATION, HELD AT THE ANAMALLAI CLUB, ON TUESDAY THE 14TH DECEMBER, 1920, AT 11-00 a. m.

PRESENT:—Messrs C. R. T. Congreve (Chairman), S. Sladden, J. H. Ireland-Jones, J. E. Carless, S. C. Biddell, E. C. Giddy, D. Cooper, E. N. House, C. K. Pittock, G. P. White, E. W. Simcock, L. G. Blakesley, Dr. M. J. Murray, and J. E. Sampson, (Honorary Secretary).

MINUTES:—The Minutes of the following meetings were taken as read, and confirmed: –

Extraordinary General Meeting, held on the 14th October, 1920.

Extraordinary General Meeting, held on the 2nd November, 1920.

INTER-DISTRICT SPORTS.—The Chairman informed the meeting that, at the recent meeting of the General Committee of the U. P. A. S. I., a committee of three had been formed to go into this matter, and that it had been considered that tennis would be the only game which it would be possible to arrange, owing to the difficulty of a large number of men moving from district to district.

SHANDIES:—The Honorary Secretary informed the meeting that the Chairman and he had looked into this matter while in Coimbatore in November, and that it was now agreed that Mr. Fraser's bill for Rs. 54 6 had been sent in error. It was now only necessary to trace the short delivery of a portion of the iron sheets ordered and paid for, and the Honorary Secretary was requested to again approach Mr. Fraser in this matter.

COCHIN RAILWAY.—The Chairman explained the result of the Deputation to the Dewan of Cochin, on the 8th December, 1920.

Mr. Pittock gave the meeting further details as to the necessity of a re-survey of the line.

ELECTION OF ONE MEMBER TO GENERAL COMMITTEE.—The meeting considered it unnecessary to elect any member to fill the existing vacancy, the end of the year being so close at hand.

CORRESPONDENCE.—Read letter from Mr. Stewart, dated the 20th November, 1920, and copy of letter from this gentleman to the Collector of Coimbatore, of the same date, with regard to the census.

The meeting desired the Honorary Secretary to write to Mr. Stewart, pointing out with what ease the census could be carried out, and that Government were, at this time, expecting help from Planters in this and other matters. The Honorary Secretary was instructed to ask Mr. Stewart to rescind the letter above referred to, and to point out that complaints on this matter had been received from no other member.

MEETING OF THE GENERAL COMMITTEE OF THE U. P. A. S. I.:—The Chairman informed the meeting that, at the above meeting, held recently, the increased subscription had been agreed to, and that the new rules of the Benevolent Fund had been accepted. The meeting also noted that there was the possibility of the General Mycologist and Entomologist being stationed in the Anamallais at no distant date.

TRANSPORT:— The meeting was informed that Messrs. Massey & Co., Ltd., had agreed to send up a fully-loaded petrol driven lorry, and that the "Sentinel" Wagon Agents had also agreed to send up one of their wagons, for purposes of demonstration, provided that permission could be obtained to bring same over the bridges.

The Chairman said that he had been informed that the cost of strengthening the bridges would be small, and that the upkeep of roads used only by Steam or Petrol Vehicles is said to be only one quarter of that of roads used entirely by country carts, which would mean a large reduction in the cost of upkeep of roads.

The meeting was in favour of a Limited Liability Company being eventually formed to deal with this matter, in order to do away with the possibility of each estate arranging its own transport, and the consequent congestion of all roads. Mr. Pittock informed the meeting that he and the Chairman, in conjunction with an Engineer having a large knowledge of the District's requirements, were endeavouring to draw up a draft scheme to be placed before the Association at a later meeting.

The Chairman read his letter to the Executive Engineer, dated the 21st November, 1920, and was requested to again write, mentioning that the weight of the lorry proposed to be sent up by Messrs Massey & Co., Ltd. was only 5 tons.

RULES WITH REGARD TO EAST COAST LABOUR:—Read and recorded letter from the Secretary, U. P. A. S. I., No. 2093, of the 20th November, 1920. The Honorary Secretary was instructed to send a circular to all Managers stating that a copy of the said rules could be had on application to him.

FORT ST. GEORGE GAZETTE.—Mr. Biddell suggested that it would be of interest and use if any items of importance to Planters in the *Gazette*, were published weekly in the *Planters' Chronicle*, or a monthly supplement commenced containing such information. The meeting approved of the suggestion, and the Honorary Secretary was instructed to write to the Secretary, U. P. A. S. I., enquiring if this could be arranged.

ROADS.—The Honorary Secretary mentioned that no payment had been made for the upkeep of bridle paths, etc., since the end of September, 1919, and was instructed to draw the attention of the Superintending and Executive Engineers to this matter.

The Honorary Secretary was also instructed to write to the President, Coimbatore District Board, with copies to Mr. E. Vincent, and the Collector, regarding the condition of Pollachi—Vananthorie Road.

ELECTION OF MEMBERS.—The following gentlemen were elected members of the Association:—

Mr. Tyringham, proposed by Mr. Biddell, and seconded by Mr. Carless.

Mr. Wheeler, proposed by Mr. Carless, and seconded by Mr. Congreve.

Mr. Wallace, proposed by Mr. Sladden, and seconded by Mr. Carless.

Mr. Tyler, proposed by Mr. Congreve, and seconded by Mr. Pittock.

Mr. Kirwin, proposed by Mr. Sladden, and seconded by Mr. House.

Mr. Stevenson, proposed by Mr. Simcock, and seconded by Mr. Cooper.

DISTRICT BOARD.—The Honorary Secretary informed the meeting of the result of the interview with the Collector, attended by the Chairman and himself, on the 6th November, 1920, in Coimbatore. The meeting went into committee, and considerable discussion took place.

The Honorary Secretary was instructed to write to the Collector forwarding a copy of the revised budget, and advising him of the conclusions arrived at by the meeting.

(Signed) C. R. T. CONGREVE,
Chairman.

(Signed) J. E. SAMPSON,
Hon. Secretary.

SYNTHETIC AMMONIA.

A French Invention.

In its issue of November 21, *Le Matin* published an article on the manufacture of synthetic ammonia, containing the following references to a recent French invention :

" If the Germans were able to hold out for four years against the Allies it was, above all, because they knew how to replace Chili nitrate, which could no longer reach them, and which was the essential ingredient of their manures and their explosives by other nitrogenous products which their chemical industry had successfully created from their very inception. It was because in the colossal works of the Badische Company they had succeeded in continuously manufacturing these bodies by the fixation of the nitrogen of the air with the Haber process. On this process, which almost succeeded in gaining them the victory, the Germans are counting for restoring their supremacy in peace.

"Now facing the very efficient Haber process, a French process is to-day being perfected which is proving itself conspicuously superior to the German process, and which, provided the wings of its first essays at flight are not clipped, can and must to-morrow take from our enemies their present unchallenged supremacy in industrial chemistry. The inventor of this process is the young and known physicist, Georges Claude, the very same to whom France already owes the creation of the industry of liquid air. Yesterday, with a number of members of the Academy of Sciences, Messrs. d'Arsonval, Berthelot, Bigourdan, Janet, Lallemand, Moureu, Tisserand Lemoine, with several Ministers, Mr. Breton, who does not forget that he was Minister of Inventions, Mr. Reibel, and many other Parliamentary leaders and experts (some are both), we were able to admire the ingenious invention of Mr. Georges Claude in full working.

"In the German Haber process the nitrogen from the air is fixed on hydrogen to form ammonia in tubes where the pressure is about 250 atmospheres. It was believed formerly that pressures of this order could not be exceeded without danger. Now Mr. Georges Claude—and this is the most essential feature of his invention—has proved that this is not the case, and that not only is it possible to produce pressures far in excess of these, but that they possess many advantages. The nitrogen from the air is separated by fractional distillation of the oxygen of the air after liquifying the latter, and it is a very curious thing to see these liquids, whose temperature approximates to 200 deg C below zero, flowing by the bucketful from an apparatus of quite modest dimensions. This nitrogen returned to the gaseous state is mixed in suitable proportions with hydrogen, and the mixture is compressed to 100 and then to about 200 atmospheres in ordinary compressors. Then they are taken into a new compressor, which compresses them to the astonishing pressure previously considered to be industrially impracticable of 900 atmospheres! How has this been rendered possible? Simply through the fact that the more the pressure on a mass of gas increases the more its volume diminishes, and consequently, the smaller the size of the apparatus becomes, and the greater its resisting power and its staunchness will be. However this may be, whereas with the pressure of 200 atmospheres used with the German process, 10 to 12 per cent. at most of the gaseous mixture was converted into ammonia, this proportion is more than tripled with the high pressures of the Claude apparatus. It is in this respect, above all, as also because of the space occupied and of the far lower cost of the French plant, that its enormous advantages consist. It should be added that the high pressure permits the ammonia generated being collected wholly and directly in the liquid form—which the German process does not permit.

At the present moment Mr. Georges Claude has already realised a daily output of a ton and a half of ammonia, corresponding to seven tons of sulphate of ammonia, corresponding to seven tons of sulphate of ammonia, and this with plant and works proportionately thirty times smaller than what would be required by the Badische for an equal output. On the other hand, it is not under the form of sulphate but of chloride of ammonia that Mr. Claude intends to furnish our farmers with the manure they require. This will permit of the chlorine being used, which is given off in large quantities in the industrial manufacture of soda—in short, this will permit of wedding the separate interests of these essential industries—soda and nitrogenous products. In comparison with these most powerful appliances of such small volume, the enormous German apparatus with very indifferent efficiency and their 'colossal' complications, makes one think of the classical saying—the mountains were in labour and they brought forth a mouse."

Cumberland Coal Power and Chemicals Limited, Nitrogen House, 31 and 32, Grosvenor-place, S. W. 1. owners of the Claude synthetic ammonia process for England and her Colonies, are about to instal works in Cumberland for the production of synthetic ammonia on a large scale by this process.—*Daily Telegraph.*

JAVA TEA IN AMERICA.

Appreciation and Advice.

Mr. F. L. Wiliekens Mac-Donald of San Francisco writes as follows:—

For the second time I have enjoyed the privilege to be able to pay a visit to the beautiful Dutch East Indies. More able pens than mine have long ago sung the praises of the beautiful islands which have reached such a flourishing condition under the able management of the Dutch.

My chief object, here, is to draw the attention of those interested to the conditions abroad, whereof the Java Tea producers are probably not aware and with which they of course can hardly be conversant, but the consequences of which they plainly experience.

May I be permitted to remark that my extensive business relations, my many voyages and chiefly my long sojourn in the United States, enable me to form a better opinion than many who have not had my opportunities.

Comparisons are always distasteful, and, although I am undesirous to come upon the scene to give advice, still, as an indirectly interested party in the tea trade I hereby especially wish to appeal to the tea planters in Java.

Therefore I venture to ask the following question:—

Which of your consumers know that they use "Java" Tea?

You know as well as I do, that this, with very few exceptions, is hardly anywhere the case.

In Australia large quantities of Java tea are sold, but the general public only knows it as "Indian" or "Ceylon" tea, and so it is even in Holland, England and America.

The wholesale trade is compelled to pack and deliver Indian, Ceylon Chinese and Japanese teas, because the general public, and consequently the retail trader, ask for them.

But who ever asks for Java tea?

The wholesale trade therefore acquires only the Java product because it is to its advantage, that is usually cheaper than any other kind. At present the tea planter, and the tea trade in general, have a few profitable years behind them, but it must not be expected that the prices realised during 1919-20 will be maintained during 1921, 1922, or 1923.

The enormously diminished purchasing power of Europe, as well as the almost total loss of the Russian market, will result in a large surplus production of tea.

Already the reaction of the booming of prices and of the speculation during the years 1919 and 1920 makes itself felt, and very probably the tea planters will have to face a few years during which it will be an utter impossibility for them to pay for the cost of production.

How long it will take, until the consumption again will equal the present production is hard to guess, because we have no data to go upon to make the remotest calculations, when f.i. Russia will be able to export in sufficient quantities to render barter possible.

In other countries the rate of exchange is a factor to be seriously considered, because low prices in Netherlands Indian currency still mean high selling prices in franks, florins or lires.

Formerly we were of opinion that Australia would prove a great outlet for Java tea, but sight was lost of the fact that its population barely amounts to five million souls, and that a steady demand exists there for "Ceylon" and "Indian" Tea.

There are only two countries where the use and the sale of Tea may in the near future be increased.

Firstly in the United States of North America, and secondly in South America.

English Firms, until very lately, entirely supplied South America with Tea, usually direct from England especially packed for the South American Market under the Firms' own brand, without even mentioning the country of origin.

Tea being consumed there by only a small section of the population, chiefly by the higher classes, and coffee being the national beverage, it would be a difficult task to increase the consumption of tea, and, in the event of a greater demand, the British Indian product will certainly scoop the pool.

During the late war large quantities of Java tea were imported and consumed in the United States. Much of that was of an inferior quality, and totally unsuitable for the American Market.

Notwithstanding that, the wholesale trade has learnt to appreciate the good qualities of the various kinds of Java tea, and at present there exists a more or less regular demand for that product.

This demand solely exists amongst the large importers and the wholesale merchants. To the general public Java tea is unknown, and consequently Java tea always has to be considerably cheaper than other tea of similar quality.

Owing to the abolition in the United States of alcoholic beverages, in all probability an increased consumption of tea may be anticipated, the more so as the consumption there per head up to the present has almost been infinitisimal.

Java tea, during a couple of years of the war, dominated the American Market. Has proper advantage been taken of this probably never recurring opportunity to introduce Java tea to the American public? No, positively not!

Only one business house in San Francisco did its utmost in this direction, but, owing to the lack of support on the part of the exporters and producers in Java, was reluctantly compelled to relinquish its efforts.

In the United States, the housewife, by means of advertisements in the daily papers, and especially in weekly and monthly ones of which the issues run into millions, is kept thoroughly posted up *re* all kinds of domestic articles.

In those the preserved food maker, the cocoa manufacturer, and the tea and coffee blenders largely advertise, so that the housewife in her next order will insist on her grocer supplying her with their respective brands.

In these "States" few purchases are made "ex bulk", by which I mean weighed off by the shop assistant and put in a small bag. The housewife usually sends her order by telephone f.i. for a small bag of salt, a box of eggs, a case of apples, a small packet of tea, a tin of coffee, a bag of flour, and such like.

Then she knows what she will receive, because she has ordered the brand she prefers, and, ten to one, the first time she saw that brand in an advertisement in one of the monthly papers.

Consequently if you want Java Tea to be used in America, Java must advertise.

You must not advertise with the intention of supplying your tea direct to the consumers, on the contrary you must do it in such a manner which compels the shopkeepers to supply their customers with Java tea. But as a matter of course shopkeepers must be able to obtain Java tea.

As a rule Hollanders hardly know how to advertise in the right direction, but the Java tea planters may take an example of Sir Thomas Lipton, who never lets an opportunity to advertise slip by; not even a sailing boat race.

No doubt the greatest stumbling block is to get the so much required co-operation.

A Hollander is usually disposed to have a fairly high opinion of his own qualifications, but he seems to have extremely little faith in the results which can be achieved by co-operation.

It is only by co-operation at joint expense, and with mutual support, that the Java tea planters will be able to improve the demand for "Java" tea, and to increase its consumption.

Only then will "Java" tea be fully appreciated.—(*Hollands East India.*)

INDIAN TEA ASSOCIATION.

The Indian Tea Association publishes the following figures for information.

Exports of Indian Tea from Calcutta, Chittagong and South Indian Ports.

		1920. lbs.	1919. lbs.	1918. lbs.
Sailings to Great Britain from Calcutta in Nov. 1920	Black 10,819,480 Green Nil.	10,819,480	41,252,624	10,232,582
Sailings to Great Britain from Chittagong in Nov. 1920	Black 599,596 Green Nil.	599,596	15,594,462	3,501,413
Sailings to Great Britain from 1st April 1920 to 30th November 1920 (including Chittagong) ...		119,455,994	212,254,370	193,884,625
Sailings to Australia and New Zealand in November 1920 ...		860,654	Nil.	2,407,050
Sailings to Australia and New Zealand from 1st April 1920 to 30th November 1920 ...		4,079,381	698,886	6,072,061
Sailings to North America in Nov. 1920	Black 644,384 Green Nil.	644,384	2,831,966	142,043
Sailings to North America from 1st April 1920 to 30th November 1920 ...		6,091,976	7,720,140	1,939,365
Sailings to other places in November 1920 (see under)	Black 421,963 Green Nil.	421,963	1,960,620	1,806,656
Sailings to other places from 1st April 1920 to 30th November 1920 ...		7,767,118	7,438,065	11,268,972

The following are the shipments from Southern Indian Ports during the month of November 1920, *viz* :—

		lbs.			
Cochin—					
To London ...	631,326				
Manchester ...	46,924				
Asiatic Ports...	12,046				
		690,296			
Tuticorin (direct)—					
To London ...	441,871				
Colombo ...	310,338				
		752,209			
Quilon— ...	Nil.				
Alleppey— ...	Nil.				
Calicut—					
To London ...	616,317				
Bombay ...	16,309				
Colombo ...	112,680				
Kathewar ...	300		lbs.	lbs.	lbs.
		745,606	2,188,111	4,623,268	4,962,062

Do. do. from 1st April to 30th November 1920 ...	17,984,864	19,064,831	25,711,469
Total Sailings from 1st April to 30th November 1920 ...	155,379 333	247,176,292	238,876,492

Daily customs Entries for Export from Calcutta to Great Britain from 1st April to 30th November 1920 ...	Black	92,667,100	...	92,667,100	
	Green	Nil.			
Do from Chittagong	Black	29,883,482	...	29,883,482	
	Green	Nil.			122,550,582
Do from Calcutta 1919	Black	162,979,580	...	162,979,580	
	Green	Nil.			
Do from Chittagong 1919	Black	49,766,056	...	49,766,056	
	Green	Nil.			212,745,636
Exports from Calcutta to Bombay by rail from 1st April to 30th November 1920 ...			...	...	8,410,169

* Exports of Tea from Ceylon as per "Ceylon Chamber of Commerce" Price Current Figures.

						lbs.
Total Exports from 1st Jan. to		6th Dec.	1920	...	Black...	167,563,376
Do	do.	do		...	Green...	3,007,273
Do	do.	do	1919	...	Black...	187,030,821
Do	do.	do		...	Green...	2,473,638
Do	do.	do	1918	...	Black...	164,005,324
Do	do.	do		...	Green...	1,297,186
Do	do.	do	1917	...	Black...	171,559,038
Do	do.	do		...	Green...	4,722,020

*These figures are obtained from manifests completed up to 8th December 1920. Incomplete manifests prior to that date are not included.

Statement showing the destination of exports of tea to sundry ports during the month of November, 1920.

	lbs.	lbs.
Africa—Portuguese East	1,200	
Ceylon	50	
Chile	97,152	
Egypt	123,113	
Natal	3,646	
Straits Settlements	8,740	
		233,901
Rangoon		188,062
	* Total...	421,963

* The above figures are included in the exports shown above.

RED RUST ON TEA.

(*Department of Agriculture, Ceylon.--Leaflet No 17*).

A disease of tea, which is well known in Ceylon and in India under the popular name of "Red Rust," has become more prevalent in Ceylon in July and August of this year. It has further shown the more serious symptoms of attack, *viz.*, chlorotic or variegated leaves and death of branches on a bigger scale than heretofore. This type of attack in North-East India, where it causes appreciable loss, is considered to be one of the most serious blights of tea. In Ceylon, Red Rust has been known for many years as a cause of leaf spotting, in which form it is of minor importance. The present outbreak is apparently confined to Uva and Sabaragamuwa. It is a disease of weakened bushes, and the causes which have led up to loss of vigour may be enumerated as follows:—(1) In Uva, July and August have been much drier months than usual, and strong winds have been prevalent and long continued. (2) During the war manuring programmes had perforce to be cut down owing to the shortage to manures. In the case of potash manures, this is of particular note, in view of the importance of potash for woody growth. (3) No corresponding reduction of plucking programmes was made, but rather heavier plucking than usual was the rule in view of the high market price of tea. Finally, in one particular instance the reduced vigour of growth was traceable to the shallow soil on which the tea plants were growing.

The organism causing this disease belongs to the class Algæ, and is known by the scientific name of *Cephaleuros mycoidea*. Algæ, of which sea weeds and slime weeds of fresh and salt water are the most familiar examples, are rarely parasitic, being provided with a colouring matter, by means of which they are able to manufacture their own carbo-hydrate food materials. The parasitic nature of Cephaleuros is, therefore, of particular interest, and the fact that this organism can and does live in the non-parasitic form makes it particularly difficult to eradicate.

Red Rust (*Cephaleuros mycoidea*) occurs in two forms, easily distinguished by their position on the host plant, one on the surface of the leaves, and the other on the stems.

EFFECT OF THE PARASITE ON THE TEA PLANT.

On the leaves it occurs on the upper surface as red, or orange-red circular patches, nearly half an inch in diameter. If such a patch is held edgewise between the eye and the light, it will be seen to be covered by a dense mass of erect filaments each surmounted by a small knob. This is the fruiting condition of the alga, the knobs being sporangia, each containing several spores. Frequently the alga is restricted to the upper surface. Not infrequently, however, the blight penetrates the epidermis, passes through the leaf, and forms a corresponding fruiting patch on the lower surface also. The damage done to the leaf is small, and of little economic importance, for the bush is not appreciably injured by it.

On the stems the effect is different, and far more serious. The first indication of attack by Red Rust on the stem is the presence of variegated leaves, partly green and partly yellow, round the edges of the bush. Almost invariably in June, after the first heavy rain of the season, a close examination of the stems bearing these variegated leaves will reveal the presence of hairy orange-red coloured patches, the fructifications of Red Rust. As a rule, the appearance of these chlorosed leaves is followed by the death of the shoot on which they occur, and it is comparatively rare that a shoot which bears algal patches is able to recover. In advanced stages of attack the bush has a hollow appearance, due to the death of many twigs. The general aspect of hollowness of the bush combined with the unhealthy colour of most of the leaves renders the recognition of a severe attack quite an easy matter, even in the absence of any red patches on the stem.

METHOD OF REPRODUCTION.

Special cells known as Sporangia are formed at the tip of fine hairs produced on the algal patch. These sporangia can be seen with the naked eye as small knobs if a fruiting algal patch is held edgewise between the eye and the light. When fully matured the sporangia are ruptured on access of water and the contents escape as actively swimming spores, which come to rest after a few minutes in any situation to which their own motion or that of the water may have carried them. Here the spores germinate and give rise to a new generation.

HOW THE DISEASE IS SPREAD.

From the above it will be seen that a gentle current of water, as produced by rain, is sufficient to spread the disease from leaf to leaf, and from leaf to stem. In this way infection is commonly carried from the leaf to the stem, the spores finding lodgment in the cavities formed by the splitting of the brown skin of the growing shoot.

Water is not, however, the only agent of dissemination. The sporangia are easily broken off from the stalks by the wind. They are light and easily carried by the air, and they are capable of germination when wetted, even after being carried for 48 hours. It must be obvious then that the wind plays an important part in the spread of the disease.

OCCURRENCE.

Red Rust is found not only on tea, but on a host of other plants varying from ferns to forest trees. It occurs usually on the leaves, particularly of trees having leaves with hard surfaces, and does little or no demage, except to tea, cacao, and the mango, where it occurs on the stems.

The universality of distribution is an exceedingly important matter when one comes to consider the means of dealing with the disease, because it makes any attempt at isolation of the plots affected an impossibility.

TREATMENT.

Improved Cultivation. The primary aim of every planter who wishes to check the disease must be to increase the vigour of the bushes.

RED RUST IS ESSENTIALLY A DISEASE OF WEAK PLANTS.—Therefore, the first step towards checking the disease must be to seek out and remove the causes of weakness. There is little need to do more here than enumerate the causes which lead to a lack of luxuriance in the bushes, and hence, indirectly to an attack of Red Rust. The most important is probably the presence of defective soil and subsoil conditions, such as lack of drainage, formation of a hard pan in the soil, poverty of the soil, lack of adequate surface and deep cultivation, or lack of depth in the soil. The system of pruning can also affect the vigor of the bushes; here it may be pointed out that it is much safer to obtain a smaller number of very strong well-grown shoots rather than a large number of feebly grown ones. Too close plucking particularly in the earlier part of the season, is another frequent cause of lack of luxuriance; this fault must be avoided if the disease is to be checked.

Pruning.—All wood affected by the parasite, together with all small twiggy shoots, should be cut out and burnt. This measure by itself is useless, for though much of the parasite is destroyed, there invariably sufficient left on the bush to carry on the attack. Collar pruning and also firing attacked bushes have been tried, but with unfavourable results. Where spraying has been combined with pruning the results have been more satisfactory.

Spraying.—In spraying against Red Rust the time of the year at which this is done is everything. Spraying when the orange fruiting patches appear on the stem is valueless, for at that stage the spray will not wet the parasite, which is thereby unaffected by it, and also the wood on which the fructification has occurred is as good as dead. Four or five months before fruiting patches occur the conditions are different. The blight is not visible to the naked eye, the damage done to the stem on which it is situated is not serious, and the alga is easily wetted by the spray, and so is easily destroyed. As pruning is usually carried out when the blight is not visible, it is advisable that spraying should follow pruning on affected plots, the prunings being burnt.

Bordeaux mixture is the most suitable spray to use.

The following mixture has been recommended in recent years, and, in view of the quality of Ceylon lime, may be easier to make than the usual standard Bordeaux mixture:—Dissolve 6 lb. 6½ oz. of copper sulphate in two or three gallons of water in a wooden vessel. Slake some good quicklime with a little water and put it into a tub with 120 gallons of soft water. The quantity of lime should be, in Ceylon, about 5 lb. Stir up the lime and water two or three times, and leave it to settle. Run off 86 gallons of the clear lime water and mix it with the copper sulphate solution and then make it up to 100 gallons by adding 11 or 12 gallons of soft water.

C. H. GADD,
Acting Assistant Botanist and Mycologist.

LETTERS TO THE EDITOR.

[*The Planters' Chronicle is not responsible for the opinions of its Correspondents.*]

Pullangode Estate,
Pullangode P. O., 23/12/20.

Restriction of Rubber Output.

Sir,—With reference to your Editorial of the 18th instant, I think it unsound, and shows opportunism on your part, to make the present condition of exchange a peg on which to hang your arguments as regards Restriction for South India.

Exchange is a side issue, and, though at the actual moment it may serve your purpose to point your arguments, it has not done so either in the immediate or distant past, and will not do so in the near future, for as you say the market will probably have recovered by midsummer 1921.

Malay made the big profits in the past, and she will make them again directly the market recovers, and quite right too, but this is all the more reason why we should not unnecessarily and unfairly penalise ourselves.

I don't think this red herring of exchange which you have drawn across the trail is likely to deceive anyone,

Yours faithfully,

(Signed) S. P. EATON.

(NOTE BY EDITOR, P. C.) It was not meant to deceive anyone, and we sincerely hope it will not. We have endeavoured merely to give our readers all points of view.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" Coffee

(BY CABLE.)

LONDON, DATED 31ST DECEMBER, 1920.

115s./- per cwt. Market Quiet.

LAND GRANTS TO EX-SERVICE MEN.

It will be remembered that the Executive Committee, U. P. A. S. I., in their report to the General Committee, * gave a *resume* of what had been done in India and Ceylon in this matter, and stated that no reply had come to hand from Malaya. We understand that since then Ceylon has agreed to the alternative scheme of cash grants, but in Malaya, although an alternative scheme was put forward by the Planters' Association Committee which provided for the surrender value of the land grants being given when preferred by the applicant, the F. M. S. Government has decided to stand by their original scheme. A copy of this scheme is not available, but reference will be found to it in a leading article we published in April last in these pages, (Vol. XV, No. 14, April 3rd, 1920), and we are able to give our readers, this week, the following statement, which has been sent to the "Malay Weekly Mail" for publication :—

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* Vide P. C. Vol. XV, No. 50, Page 840.

> "The Government has carefully considered the various amendments to the War Service Land Grants Scheme which have been suggested by representative associations, and now desires to make the following announcement :—
>
> "The Government is not prepared to vary the class of ex-service men to whom this scheme should apply. It is recognised that there may be hard cases, but this is regarded as inevitable. Cash grants will not be made, but it has been decided to remove all restrictions on disposal of the land allocated. Any approved applicant is, therefore, at liberty to sell his land, but the purchaser will be required to pay the ordinary rent. The value of the land will consequently be the premium which would have been charged by the Government if the applicant had not been an ex-service man. The value of this concession is greatly enhanced by the fact that Government has decided, at any rate until present circumstances alter considerably, not to alienate any more land for rubber without imposing premium equal to the full market value of the land.
>
> "Suggestions have been made that dependents of those who have died, or have been permanently disabled should participate in the benefits of this scheme. The Government considers that such a course is impossible, but it may not be out of place to point out that the Government has already contributed £102,500 to the Officers' Relief Fund, which was primarily intended for the relief of former residents in Malaya. If, however, any case of exceptional distress or hardship is brought to the notice of Government, it will receive sympathetic consideration.
>
> "It is recognised that approved applicants may not now be in a position to avail themselves of the offer of land, and it has been decided that the option shall remain open for the whole of 1921, and that applications for a further extension during 1922 shall receive favourable consideration."

In the same issue the "Malay Mail" publishes the following letter from a "Young Hopeful."

Sir,—At last, after much procrastination and deliberation, the Government has finally decided upon what it considers a fitting reward for returned ex-Army men, and the scheme as it stands is one which could have been, and as a matter of fact was, decided upon some time ago. The alternative cash grant has been found impracticable, and, to quote our Acting Chief Secretary, "It was never the intention of the Government to make presents to returned ex-officers and men," and this in spite of the fact that both Ceylon and Southern India, after plebiscite, have settled upon a cash grant as being the one and only practicable way out of the difficulty. The advantages of a cash grant should be only too apparent to anyone who has studied the question, but it may not be out of place to mention the following, which appears to the writer to be well worthy of consideration :—

(1) At the present slump in rubber, a cash grant would help many deserving planters to tide over the crisis, who, owing to no fault of their own, have been thrown out into the world of Malaya and find it hard to obtain other employment.

(2) We are not all horny-handed sons of toil, and a good many of us don't know over much about planting rubber, pesangs, etcetera, but are quite capable of utilizing a cash emolument to the best advantage to the community and country generally.

(3) A cash grant, could with certain restrictions, be granted only to those who would utilize the money to good effect.

We cannot all sit in Kuala Lumpur offices and look after 100 acres of land some 100 miles away.

One begins to wonder if it is not quite on the cards that our overworked officials have not developed into stale bureaucrats, living and working as they do in this salubrious climate. I trust, Mr. Editor, you will give publication to this very hoarsely worded "Voice from the wilderness," in the hopes that it may sink into some sympathetic breast." One wonders where this gentleman got his information from regarding S. India—it is the first we have heard of any cash grant.

For the information of our Correspondents we may say that we understand the Madras Government has asked for specific instances of applications by ex-service men who are planters in South India, and the Secretary U. P. A. S. I. has called upon the various District Associations to forward these, with the necessary details, for submission to the Government.

THE TEA POSITION.

The Tea Markets of the World are to-day suffering from an excess of common Tea. London and New York, especially, are already overstocked, while there still remain in Calcutta and Colombo many millions of pounds of Tea to be shipped here; Tea, which has been carelessly plucked and badly manufactured, and for which there is no demand.

The Tea to which we refer, says "The Produce Markets Review" is "Common Pekoe Souchong," and there is much more of this grade in the country than can easily be consumed. At the beginning of this month there was a stock of Tea in the United Kingdom of about 190,000,000 lbs., or say, at the average present rates of consumption and export, four and a half months' supply. We should estimate that about a third of this amount is common Tea, worth 3½d to 5d per lb. A stock of about 60,000,000 lbs. of low grade Tea is very excessive, and, under present conditions, reducing is a very great problem, because, with a plentiful supply of medium and good Teas, dealers will not purchase undesirable parcels.

The overstocked position of the Tea market at the present time is the logical result over-prodution stimulated by high prices. When common

Tea was fetching 1s 2d, 1s 3d, or even 1s 4d per lb. here, a substantial margin was left to the grower. During the same period, good Orange Pekoes were selling at about 1s 8d per lb. Because of the small percentage increase in the selling price of the good Tea, it became a question to the grower whether it was worth while for him to pluck carefully or to increase output ; as, of course, the latter end could be achieved by careless picking. While many Companies were determined to keep up the high quality of their Teas, it is to be regretted that on many estates the short-sighted policy of putting quantity before quality was resorted to. This policy has resulted, as we state above, in over-production of the commoner qualities, with which our market is now surfeited.

In complete contrast to the state of low-grade Tea, we have the fine Tea position. Fine Teas have recently been dealt in at fancy prices ; finest Assam Broken Orange Pekoes were sold up to 6s. per lb. last week, and the demand for really tippy Tea is very good. To generalise, all Teas over 9d. per lb. sell well to-day ; all Teas under this price are difficult to dispose of.

It is generally known that the cost of production of low Tea is now much higher than the price at which it is selling here. Obviously, the grower must now reverse his decision of a year ago, and, instead of sacrificing all to quantity, he should manufacture fine Tea. Recently, we have been advised that the Indian and Ceylon Tea growers are pledging themselves to reduce the quantity of Tea to be made in the coming season : the latest news says that practically all Tea Companies operating in the Indian Empire have agreed to restrict their output. It is also reported that the Government is devising some relief for the Tea grower, otherwise a large proportion of the acreage under Tea in Ceylon would inevitably go out of bearing. A number of estates, indeed, have already abandoned cultivation.

These statements show the cause of the low prices ruling to-day for Common Tea. The effect of these low prices has hardly yet been felt. The reason for this is not difficult to find : it is explained by the comparatively very high prices obtained for good and fine Teas. *The public do not want Common Tea.*

In contrast to this view, a certain section of the trade has for years advocated low price Tea, advertising that the finest Tea grown can be retailed at the lowest quotation. Such fallacious statements have misled the public in some degree, and have had an adverse effect on the sales of finer grades.

But now, we think, the public realises that it does not pay to buy common Tea, and they understand that better grades are more economical in use and more refreshing in the cup. Rarely before has the enquiry for good Tea been so insistent. Quality, not price, is the keynote of to-day's demand.

On examination of the various factors which concern the market at the present time, we have come to the conclusion that the best value is shown in the parcels of good sound Assam and Ceylon Tea, which can now be brought under a shilling per pound. This price is under the cost of production. Finer Teas are dear in comparison : inferior Teas are worthless.

We would like to add a word to all interested in the Tea Trade. Until the quality of the Tea offered to the Consumer improves, the Tea Trade will not improve.

THE RUBBER POSITION IN AMERICA.

Interview with a London Dealer.

We have had an opportunity of conferring with one of the many dealers who recently visited the United States in order to obtain first-hand information of the position ruling among rubber merchants, dealers, manufacturers, and others interested generally in our trade. The following represent the views of the dealer in question, and should be very closely studied by all interested in the industry at the present time :—

GENERAL FINANCIAL POSITION IN AMERICA.

Early in the year, U. S. Banks were given a hint by the Federal Reserve Board to restrict credits with a view to bringing down the high cost of living. The Federal Board put their heads together, and decided that the only way to stop this was to restrict credits. Financial stringency is more acute in America than in London ; unfortunately, all credit is created artificially.

MANUFACTURED STOCKS IN AMERICA.

As regards tyres, assuming that demand next spring is as good as it was last spring, there is practically six months' supply of manufactured tyres. It is common knowledge that there is a likelihood of the weight of tyres being increased, and in that way the total amount of rubber in a tyre may be larger than hitherto ; but, on the other hand, the new cord tyres which have been manufactured for some time have been found to have a longer life than previous tyres. Manufacturers calculated on a vehicle requiring five tyres per year ; they are now informed that only an average of three may suffice on account of the increased life of the tyres.

The position of manufactured rubber articles other than tyres was not investigated by our authority.

VIEWS OF AMERICAN DEALERS AND MERCHANTS.

Practically everybody is pessimistic as regards the immediate future. Enormous stocks of rubber have got to be liquidated, and manufacturers are asking to have deliveries postponed, which means pressure to sell nearby rubber. Despite this depression, dealers taking a long view are quite cheery.

The financial position among rubber dealers in America has been cleared by the liquidation of accounts incurred by outside speculators, who have not had a long connection with the market.

MANUFACTURERS' VIEWS ON PRICES OF RAW RUBBER.

The average rubber manufacturer in the States, according to our informant, would prefer to see 45 to 50 per cent. rubber ; he does not like enormous fluctuations. Manufacturers in the ordinary course of business have ensured their future requirements at prices well above those ruling to-day. This view with regard to stability and higher prices is held, not only by American groups who have their own plantations, but generally throughout the manufacturing world in that country.

RECOMMENDATIONS TO RELIEVE THE POSITION.

First– Get rid of the outside speculator.

Our authority considered that, in view of the enormous stocks of raw and manufactured rubber throughout the world, and the financial stringency in all countries, that the present price, though low, is really higher than it would naturally be. The view was expressed that the market was being bolstered up, possibly by brokers or dealers who are long, and that if the thing were left without any support prices would sag. It is considered to be absolutely essential that the outside speculator should be eliminated, whether he is bull or bear, because his operations tend to make the market unstable.

Second—Do not ask for Government legislation.

It is not wise to invite Government aid, even to the limited extent of controlling production. If the British Colonial Governments enforced legislation with regard to restricting output, the Dutch or any other Government might regard it as a fine opportunity for getting out on favourable terms.

Doubt was expressed as to whether 25 per cent. would be at all effective, because it is very uncertain as to what extent, if any, American manufacturers will enter the market during the next six months; some will, but the bigger men are well covered for months ahead.

HOW TO HELP THE MARKET.

Our authority suggests that since the American manufacturer nowadays has to practically borrow money with which to pay, two months before delivery, for his raw rubber purchases; it is high time the rubber producers adopted a scheme something like that which has prevailed in the tea and other industries for many years past, that is, to give them credit for, say, three months on agreed terms, in order to relieve their position. A system such as this would be of incalculable benefit to all manufacturers who are pretty well stocked, and yet who desire to possibly average their purchases if credit is extended to them; they are not, under present circumstances, able to take up and pay for the rubber on due dates of delivery. If a system like this was in vogue, it would probably stimulate early buying on the part of legitimate consumers.

Some system of co-operation which would prevent enormous shipments being made to one country for sale there, and which would also give some central body limited powers as to the amount of rubber that should be put on the market at regular periods, might also be beneficial, but it is a very difficult problem.

On the whole, our authority would prefer that the manufacturing and plantation sections of the industry should be left on their own, and that no Government help of any description should be sought by growers.

The scheme of manipulation suggested in some quarters—namely, that a financial group should buy quantities of spot rubber and sell futures—is deprecated. Purchases on a scale large enough to justify such a scheme would raise spot prices, but this would, in the present state of the market, simply help a number of dealers and speculators who are long to get rid of their holdings. Temporary stimulation of the market in this way would do no good. Natural means must be found to restrict production and stimulate consumption. Until the huge accumulation of spot rubber is reduced, no relief to the present situation is possible.—"The India Rubber Journal."

THE MARKETS.

We are indebted to the "Produce Markets' Review" this week for some interesting points about our Produce Markets, particularly the Tea position, an article on which we publish elsewhere in this issue. At auctions in Mail week, 41,938 packages were offered. There was a strong demand for the better grades, and good liquoring Fannings and Brokens sold at full rates. Some useful Darjeelings were offered and made high prices, but common to medium grades were slow of sale, and a considerable quantity was withdrawn.

Ceylon Tea.—23,886 packages were brought forward. All good and fine Teas were well bid for at occasionally high rates, but prices were irregular, and at times slightly lower for the poorer kinds.

Java Tea.—2,138 packages of Java lying in Manchester were offered on importers' account. There was little demand, and most of the parcels were withdrawn.

Coffee.—The market on the spot remains quiet, without change in prices, as will have been seen from our weekly cable.

London Coffee Returns.

	Home Consumption.		Export.		Stock.	
	1920.	1919.	1920.	1919.	1920.	1919.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
For week ended December 4 ...	234	315	249	115	20,442	21,196
For 49 weeks ended Dec. 4 ...	15,957	17,128	13,167	18,393	...	...

Rubber.

"Macson" writing in the "India Rubber Journal" says, under date the 9th December, 1920 :—

"Our market is weaker again, and is feeling the pressure to sell on the part of New York, where the landings have been heavy.

The nearby afloat and c. i. f. New York have both been pressed for sale ; and touched very low prices, *viz.*, 10d. and 10½d. respectively.

These low prices are indicative of the difficulty, in the way of turning produce into money, which at present is a general feature in commodity markets.

Singapore has also felt the pinch, and orders are urgently needed. Sheets on the spot are quoted 10½d Sellers, and probably less would be taken.

A feature on the London market is the falling away of the premium over spot prices for those of the distant positions.

It is no longer a paying proposition to put spot away against sales made for distant delivery, and naturally this lessens the demand for actual spot rubber.

Stocks in London are now over 47,000 tons."

Since then we have Reuters telegraphing on 30th December last the views of the "Times" City correspondent, who notes that, owing to the continued weakness of rubber, some plantation companies are urging the Rubber Growers' Association to adopt measures curtailing the output by more than the existing 25 per cent. Indeed, some propose that the Association should bring about a complete cessation to tapping. It is unlikely, however, that the Association will act precipitately. Some experts are of opinion that it is impossible to enforce a complete stoppage of production. Probably the industry will surmount the present ordeal by a compromise between voluntary restriction and a curtailment of production.

Miscellaneous Produce.

SPICES, ETC.—The depressed market conditions still remain, and buyers are strictly limiting their purchases to immediate requirements. There is little doubt that stocks throughout the country have been very much reduced, and a steady if small demand may be expected to continue. As prices for most spices are now at pre-war level, or nearly so, a more healthy state should prevail in the New Year.

Black Pepper has been further reduced, and few sales are reported. White Pepper is also cheaper, both for spot and forward; recent arrivals have been fairly heavy, and there has been some pressure to realise. There has been a fair demand for Ground Ginger, but whole has sold slowly; there have been no further changes in Cochin, and Africa and Japan are both quoted rather lower; Jamaica is unchanged, but slow of sale.

THE RUBBER GROWERS' ASSOCIATION.

(INCORPORATED).

Telegraphic address;
"Servitude, Bilgate, London,"
Tel. Avenue 712.
38, Eastcheap,
London, E. C. 3,
13th December, 1920.

Reduction of Output.

Dear Sir(s),—

1. CONTROL COMMITTEES.—With reference to the scheme for reduction of output which became operative on the 1st November last, I am instructed to inform you that cable advice has been received from Ceylon intimating that a Local Committee of Control has been formed to supervise the carrying out of the scheme. The Council approve the formation of this Committee, and have cabled to Ceylon requesting that details of how this

Committee will operate be forwarded to Malaya and South India, with a recommendation that similar Control Committees should be established in those countries.

With regard to the Netherlands Indies, the Council of the A.V.R.O.S. have notified the International Association, the Hague, that they propose to appoint a Control Committee for Sumatra, and the Dutch Association have advised that they intend to request the Rubber Producenten Vereeniging at Batavia to appoint a similar committee for Java.

I am, therefore, directed to request that all producers who have signed forms of assent or advised that they are carrying out a policy of output reduction will authorise their representatives in the East to give every facility to these Control Committees, to ensure the effective carrying out of the scheme.

2. FURTHER SUGGESTIONS.—Communications have been addressed to the Association advocating a more drastic policy of output reduction than that outlined in the Council's circular of 24th September.

At the present stage the Council cannot say whether the 25 per cent will be sufficient to effect the desired reduction in stocks.

Certain Companies have, however, definitely decided to adopt one or other of the following suggestions, with a view to accelerating crop reduction :—

1. Application over whole estate of alternate day tapping, without increasing length or number of cuts.
2. A total cessation of tapping for one, two or three months, particularly during the wintering period.
3. Abolition of tapping on Sundays and other holidays.

In forwarding these suggestions, I am instructed to point out to all producers who have assented to the Council's scheme that there is nothing in their undertaking to preclude their adopting any of the above suggestions, provided it means an acceleration of their reduction in output, and not a postponement.

Questionnaire.—With reference to Forms Nos. 1 and 2 circulated on 5th November, the Council realise that much of the information required in Form No. 2 (Output reduction) will have to be obtained from the East, and, therefore, there will be some delay; with regard to Form No. 1, however, those producers who have not furnished this information are urged to complete the Forms and return them *without delay.*

Yours faithfully,

G. SMITH,

Secretary.

[The above letter has been sent to all members of the R. G. Association.—ED. *P. C.*]

RUBBER TRADE ASSOCIATION OF LONDON.

Monthly Statistics.

NOVEMBER, 1920.

Movements of all kinds of Rubber to and from the United Kingdom as per BOARD OF TRADE RETURNS.

IMPORTS.

From	October.			10 Months ended Oct.		
	1920	1919	1913	1920	1919	1913
Straits Settlements and F. M. S. ...	6,567	7,951	2,411	49,633	49,472	20,539
Ceylon and British India ...	2,746	799	981	22,286	15,923	6,042
Dutch East Indies, &c. ...	941	1,043	196	9,678	9,745	1,410
Brazil and Peru ...	653	245	1,269	7,707	7,633	14,888
Other Countries ...	133	179	1,289	2,861	2,636	15,537
Total Tons ...	11,040	10,227	6,146	92,165	85,409	58,416

EXPORTS.

To	October.			10 Months ended Oct.		
	1920.	1919.	1913.	1920.	1919.	1913.
United States of America ...	33	7,201	1,453	24,784	17,680	14,251
Canada ...	45	529	51	2,977	1,988	399
France ...	463	754	637	11,309	9,030	4,179
Belgium ...	58	223	336	1,980	3,172	1,850
Italy ...	51	96	70	2,523	4,146	234
Spain ...	10	24	5	171	239	58
Germany, Austria, Hungary ...	608	437	730	3,993	1,813	8,466
Russia ...	1	...	423	41	68	5,184
Sweden, Norway and Denmark...	42	204	23	995	2,578	565
Other Countries in Europe ...	116	352	120	779	2,915	1,043
Other Extra European Countries.	23	23	51	992	336	613
Total Tons ...	1,450	9,843	3,899	50,544	43,965	36,842

LANDINGS, DELIVERIES and STOCKS in London and Liverpool as returned by the Warehouses and Wharves during the month of Oct.

		Landed for Oct.	Delivered for Oct.	Stocks 31st Oct. 1920.	1919.	1918.
LONDON ...	Plantation ...	9,252	2,952	41,291	24,436	12,569
	Other Grades ...	15	76	452	559	402
LIVERPOOL ...	Plantation ...	541†	115†	2,596†	1,965†	2,800†
	Para & Peruvian	740	553	801	1,000	191
	Other Grades ...	...	...	443	413	498
Totals London & Liverpool ...		10,548	3,696	45,583	23,373	16,460

† Official Returns from the six recognised Public Warehouses.

Movements of all kinds of Rubber, excluding Gutta, Balata and Guayule, to and from the U. S. A., AS PER RETURNS OF THE UNITED STATES DEPARTMENT OF COMMERCE.

	August. 1920.	1919.	1918.	8 Months ended Aug. 1920.	1919.	1918.
IMPORTS ...	19,664	10,027	9,583	205,816	156,327	116,285
EXPORTS ...	306	114	102	1,812	1,241	2,592

RECEIPTS AT PARA.

	Aug. 1920.	1919.	1918.	July/Sept. (Three months). 1920.	1919.	1918.
Rubber ..	1,181	2,220	1,050	3,772	5,610	3,390
Caucho ...	358	760	210	1,201	2,070	1,050
Total ..	1,539	2,980	1,260	4,973	7,680	4,440

† Estimate for October, Rubber 1,580 tons.

Caucho 360 tons.

SOURCE AND ORIGIN OF ARTIFICIAL MANURES.

A. R. C. Sc.

Nature maintains a constant watch, and nothing is ever irretrievably lost. We see around us that plants decay and give up the fertilizing materials contained in their structure for building up other plants. When vegetation is consumed by the animal, part of those materials will be returned to the soil in excreta, another part will go to form the animal body.

When the animal dies, Nitrogen in various forms may be given up by the decay of its flesh and returned to enrich the soil, or go back to that inexhaustible store of Nitrogen—the air. Animal bones consist mainly of Phosphoric Acid and Lime, with a little Nitrogen. These may return directly to the soil, if the bones are allowed to lie on it. or are buried in it, or may return indirectly by being first collected together for various treatments—grinding, steaming, etc., and be brought back to the soil in the form of a meal or powder.

Materials washed from the soil, and ultimately carried off to sea during the centuries, are quietly accumulated by many and various processes. Phosphoric Acid may pass through sea weeds and *animalculæ* to fish, and at the feeding or spawning grounds, where millions of generations of fish have returned, the bony remains accumulate, and, in the course of a few geological ages, man finds these deposits as the Phosphatic rocks of Canada, Florida, Algiers, Egypt, etc., and proceeds to convert them into Superphosphate by the help of Sulphuric Acid. That they have actually passed through this cycle is seen from the presence of fish scales, teeth, etc., in these rocks.

Similarly, in the distant past, Potash washed from rocks and soil has been carried off by running water and collected in places which must have resembled the various salt lakes which lie scattered over the world in our own day, and of which the Dead Sea and the Salt Lakes of Utah are the most widely known representatives. Having accumulated in such places, and the water having finally dried off, desert winds, which we know can carry light particles of soil for miles, must have safely covered them up. Later on, with a change in climate, floods may have swept over this surface, covering the whole surface still more deeply and safely with beds of sand and mud. In course of time some of these deposits so safely stored away have been discovered as the potash deposits of Alsace, Stassfurt, and various parts of Central Europe. The potash salts are mixed there, the higher grade ones being sold in the natural condition as Potash Salts, Kainite, etc., and the impure and poorer deposits being purified, concentrated and converted into Muriate, Chloride and Sulphate of Potash.

What about the Nitrogen which, as we have seen is the most important of all these manurial ingredients? Phosphorus and Potassium refuse to remain alone; these elements, as the chemist calls them, must have companionship. The first mentioned strikes up a partnership with Lime, Iron, etc., and as Phosphate of Lime, Phosphate of Iron, and such like, forms a solid which is not easily separated out again or washed away from the soil; the second forms a partnership with various acids, Hydrochloric Acid, Sulphuric Acid or Carbonic Acid, and produces solids which although easily soluble in water have a great desire to attach themselves in various ways to the soil particles. Unlike these others, Nitrogen only forms a temporary union and waits the first opportunity to escape from that union and go off alone. The normal condition of this substance is that of a gas, and in that shape it forms four-fifths of the air around us. Plants of all sorts, including the lowly bacteria, do their best to catch it and combine it with other materials in their structure. Animals build it into their flesh, but decay sooner or later sets in and it disappears into the air.

Bacteria may join it up with Soda or Potash, as in the nitrate beds of Chile and of certain parts of India, forming Nitrate of Soda or Nitrate of Potash. Plants bind it up for longer or shorter periods, if they form the food of animals some quickly escapes by the way of the excreta, the rest may escape by the decay of the flesh. When plants are stored up for long periods, as we find in coal, the period of imprisonment is lengthened. When coal is burned in the ordinary way part of this Nitrogen goes free into the air as a gas. Where coal is used in large quantity, man has evolved means of capturing the elusive Nitrogen and effecting a union with Sulphuric acid, as Sulphate of Ammonia.

In recent times scientists have developed a number of complicated processes for collecting gaseous Nitrogen from the atmosphere, and binding it into several compact and easily transportable forms. From these processes, we derive Nitrate of Lime, Nitrate of Ammonia and Calcium Cyanamide.

In Nitrate of Soda of Chile we have got the immense accumulations of ages. As far as our information goes, the process of storing up this material has come to an end, simply for lack of vegetable matter to carry on the process of nitrification.

In the Nitrate of Potash of India the process is still in gradual progress in a small way, but here also it is limited by the scarcity of organic Nitrogeneous matter. The supplies of Sulphate of Ammonia are limited by the supply of coal, the high price of other materials and the cost of labour. These factors also affect the supply of Nitrate of Lime, Nitrate of Ammonia and Calcium Cyanamide.

In recent times the conservation of materials, formerly considered of no value and allowed to go to waste, has been taken up, and many fertilisers produced from them. Waste products from Tanneries, Slaughter houses, woollen factories and various waste materials from cities are worked up and blended to form useful fertilizers.

By-products from industrial processes are found to be of great value in agriculture, the most striking instance being that of basic slag, a by-product of iron works. Various cakes are produced as a by-product of the oil crushing industry.

The plant stores its reserve food in a compact form in the seed, where it is designed to feed the next generation of seedling plants. Man takes this concentrated material, separates the oil for food or for industrial purposes, and leaves the remainder in the form of cakes of various kinds. These may be used directly for manure, as is the custom in India, or indirectly by feeding to cattle, as is the custom in Europe and America.—INDIAN SCIENTIFIC AGRICULTURIST, VOL. 1, NO. 11.

CROP PRODUCTION.

Crop production is everywhere carried on in the hope of gain; it is in this respect different from gardening, which is commonly practised without much regard to profit and loss. Many poets have sung of the pleasures to be derived from gardening, but Dr. Russell says that he only knows of one who has sung of the pleasures of farming, and that was Virgil, nearly two thousand years ago.

The seeking for profit imposes the following important conditions on successful agriculture: maximum production must be secured at the minimum of cost. This condition is best attained by utilizing to the full natural advantages and obviating, as far as possible, all natural disadvantages—in other words, by growing crops specially adapted to local conditions, and avoiding those not particularly suited to them.

From the scientific point of view the problem thus becomes one of adaptation, inasmuch as both natural conditions and crops can be somewhat altered, so as the better to suit each other.

It is well known that plant breeders can alter plants within limits not yet defined. Of the natural conditions, however, determined broadly by climate and soil, the first must be regarded as uncontrollable, so that alteration can only be effected with regard to the second of these conditions. Thus, though plants may be altered and soils improved, the scheme of crop production in any country must be adapted to the climate, and especially to the rainfall.

There is no prospect of the consumption of the products of any agricultural crop being reduced, nor would this be to the advantage of the agriculturist: his aim must be to increase his production in order to meet increased consumption of his crops. Additional production may be obtained in two ways: by increasing the yield per acre, and by increasing the number of acres devoted to the crop. In both these directions there is a great difference in the average results obtained from good agricultural methods and poor ones. In two directions progress is possible: the plant may be modified the better to suit soil and climate conditions, or the soil may be modified and improved so as better to suit the plant under existing climate conditions.

Soil conditions can be profoundly modified by cultivation, which is an art, and not yet a science. The farmer or planter achieves the result by practice of the art, but no one can yet state in exact scientific terms precisely what has happened in the process of cultivation. Dr. Russell says that it is hoped to develop a science of cultivation at Rothamsted, but that for the present cultivation remains an art, and an essentially modern art. Mediæval agricultural implements were crude, and left the ground in an exceedingly rough condition. Throughout the nineteenth century great advances were made, and, given sufficient time and a sufficient supply of labour, a good planter or farmer, using modern implements, can accomplish wonders in the way of cultivation. Unfortunately, however, neither time nor labour is always available in sufficient quantities. The early part of the life history of a plant is of the greatest importance. Consequently, unless the planting of a crop is proceeded with at the right time of the year, the results of the harvest will certainly be disappointing. Hence the limiting factor of time in crop production. This often works adversely owing to the other limiting factor, insufficiency of labour to get the work done within the proper time limit.

In both directions, time and labour, the internal combustion engine is proving a boon to agriculture, as it is enabling such cultural operations as ploughing, for instance, to be performed more quickly and more efficiently than by teams of horses or cattle.

Besides cultivation, in the sense of ploughing, harrowing, etc., the second great method of improving soil conditions is to add manures and fertilizers. Farmyard manure is more effective for this purpose than any other single substance; it is therefore likely to remain the most important manure, and, if available in sufficient quantities, it would greatly meet the case of soil improvement. Farmyard manure, however, is not available in sufficient quantities to meet all requirements.

The chemist has long since come to the aid of the agriculturist in this direction. He has discovered the precise substances needed for the nutrition of the plant, and prepared them on a large scale. These fertilizers may be classed in three groups :—

Nitrogenous—nitrate of soda, nitrate of lime, sulphate of ammonia, and cynamide.

Phosphatic—superphosphate, basic slag, mineral phosphate, guano, and bones.

Potassic—sulphate of potash, muriate of potash, and kainite.

Agricultural chemists have worked out the proper combinations of these fertilizers for most individual crops, and striking results have been obtained from the use of them. Without using any farmyard manure, it has been proved that the yield of many crops can be maintained and increased. There is still, however, much to be learned about the proper use of artificial fertilizers ; and it is possible that greater knowledge will conduce to still greater yields from the land in the future. By the use of artificial fertilizers it is certain that the yield of crops can be increased, but not indefinitely. In the case of wheat, for instance, the increase of the crop is limited by the strength of the straw. As the plant becomes bigger and bigger, so the strain on the straw increases, until finally, when the plant is some five feet high, it cannot stand up against the wind. At present the strength of the straw is the limiting factor in the improvement in crop production of wheat. Probably the plant breeder and the soil investigator between them will find a solution of this and other like problems.

In the old days, when farmyard manure was the only manure, agriculturists had definitely to arrange for the keeping of a sufficient number of farm animals, to maintain the soil in a proper condition of fertility. Hence there grew up a system of rotation on crops, one object of which was to provide sufficient food for farm animals throughout the year. This rotation of crops ultimately became a rule of husbandry in Great Britain, and has been advocated almost everywhere. It is interesting to find that Dr. Russell states that modern cultivation implements and fertilizers justify much more latitude, and that, with the exception of a few crops, there is no more need to have a rotation of crops than there is to have a rotation of tenants in a house, provided, of course, that the fertility of the land is maintained.

There is much still to be discovered with regard to combination of crops best suited to particular conditions, but the work of such stations as Rothamsted and others is gradually solving problem after problem in the direction of increased production.—*Indian Scientific Agriculturist.*

RUBBER FINANCE PROBLEM.

VIEWS OF MR. R. F. MCNAIR SCOTT.

Speaking at a rubber company's annual meeting, Mr. R. F. McNair Scott made an interesting contribution to the discussion on the rubber position. In the course of his speech he remarked :—

" The rapid and unexpected fall in the price of rubber during the last few months has forced us to recast our ideas as to cultivation, equipment, etc., and both by mail and cable instructions to exercise the utmost economy, compatible with the safeguarding of the estates, have gone out with increasing emphasis as the price of rubber fell to, and then below, the cost of production. This fall is admittedly largely due to America's present inability to use rubber contracted for ahead. It is difficult to believe that the great American manufacturing organisations, who are now reselling rubber at less than half the price at which they were eager buyers a few months ago, can have completely misjudged consumption in its broad aspects ; their and our troubles seem rather caused by a temporary dislocation in finance. The general malaise due to crushing taxation and disturbed exchanges found the rubber industry more vulnerable than most, as it is still in process of organisation to deal with a rapidly increasing mass of rubber, now some ten times the world's production of less than twenty years ago.

" Speaking broadly, we, the producers, finance rubber during its growth and transport to market—a period of years. The manufacturers have to finance the rubber during its manufacture and sale—a period of months. Between producer and manufacturer stands the dealer who has normally to finance for a period of days. If the financial arrangements of the manufacturer break down, whether this breakdown be brought about or aggravated by his money being locked up in factories planned to meet an anticipated increase in consumption; or by planting up large areas of rubber—an activity which incidentally he might have left to us, the growers ; or through general depression by the temporary failure of consumers to take up their requirements, its effect on the dealer, with a normally revolving finance of short duration, is profound.

" The remedy seems to be for us growers to increase for a time the period for which we have to finance rubber. Unfortunately, as individual companies, we have not yet (harried as most of us have been by the tax collector) been enabled to build up our reserves sufficiently to do this. Hence, although admittedly the difficulties are great, concerted action seems essential if we are to obtain the necessary financial assistance from outside. Such concerted action can only find stability on the tripod of cordial co-operation, reliable information and adequate finance. The last would be forthcoming if growers provide the first two requisites. The obvious first step is to lessen the amount of the commodity to be financed, and this has been by a general agreement to reduce normal output by 25 per cent. But such agreement should be universal, and it may be desirable that the F. M. S. Government should take a hand in enforcing reduction. It is urgent that action should be prompt and decided, for so far you have nothing to persuade consumers that the turn has come. If their confidence were restored by the knowledge that reduction would be enforced, and, if necessary, increased, market conditions would change rapidly."

NOTES AND NEWS.

Shipping Freights.

We are informed that the Clan and Ellerman Lines announce further reductions in the rate of freight from the West Coast. The rate to London this month will be, for Tea and Rubber, 97s. 6d. per 50 c. ft., and for Coffee 90s. per 18 cwts. These rates are subject to 10% rebate to contractors by the Clan and Ellerman Lines.

Railway Rates.

We understand that the old special rates of Rs. 0-3-2 and Rs. 0-3-5 per maund for tea in minimum consignments of 160 maunds at owner's risk (owners to load and unload) from Kodai Road and Dindigul, respectively, to Tuticorin were reintroduced from 1st December, 1920, and 1st January, 1921, respectively for a period of one year.

The Labour Department.

In connection with the issuing of warrants, planters from time to time request the Superintendent of the U. P. A. S. I. Labour Departments to obtain for them printed complaint forms for the presentation of plaints to the issuing Magistrate. These forms can now be obtained in any quantity from the Head Office, Coimbatore. Price Rs. 3 per 100.

Company Meeting.

PULLANGODE RUBBER ESTATES.—The report and accounts submitted to the 11th Annual Ordinary General Meeting of shareholders, held on the 13th December, shows a net profit of £3,493. With the sum brought forward, there is a balance of £5.388, which is carried forward. The crop last season was 270,000 lbs., against an estimate of 250,000lbs. Of this quantity, 175,164 lbs. sold at an average price of 1s. 9¼ d. per lb. The balance of the rubber 94,846 lbs. which consists of a considerable proportion of low grade qualities, has been estimated to realise 7d. per lb. The crop for the current year is estimated at 290,000 lbs., less the reduction under the Rubber Growers' Association restriction scheme.

Indian Peninsular Rubber.

The company shows a net loss for the year of £8,003. A large proportion of this loss, however, was made on the working of the Paralai Estate, prior to its sale. The proceeds of this sale, after deducting certain expenditure on the estate, which was held in suspense pending the completion of the sale, has been written off property and buildings account. The cost of the estates now stand in the books at £37,197, or approximately £21 per planted acre. The crops harvested for the year under review were, rubber 133,487, against an estimate of 139,000 lbs., and coffee 2,227 cwt., against an estimate of 3,260 cwt. The planted acreage is now approximately 1,770 acres, under rubber and coffee. The rubber crop for the year ending June next is estimated at 162,000 lbs., and the coffee crop at 710 cwt.

Back Numbers of the Chronicle.

The Secretary wishes to thank Mr. Phil Beaver of Sholarock for six numbers (5-7-8-9-10-12) of Volume IV, sent in response to his appeal in the Christmas number. The Library already has copies of Nos. 2-6 and 11. Can any of our readers spare us copies of Nos. 1-3 and 4, which would complete the missing volume.

Volume XIV, 1919.

This volume is now out of print, an insufficient number having been bound to meet the demand. It would be as well, therefore, if our readers would order, now, their requirements of volume XV-1920. The index to the latter is in hand, and the volume may be expected shortly.

The Local Coffee Market.

Prices at Mangalore on 31st December touched Rs. 51 per cwt. afterwards declining to Rs. 48/49 for ready delivery. A Mangalore circular says that prospects of business with France are as bad as ever, and that Havre is now quoting 215/220 Fcs. for Native, January/Aprl shipment.

LETTERS TO THE EDITOR.

[*The Planters' Chronicle is not responsible for the opinions of its Correspondents.*]

Shipping Freights.

Dear Sir,—In view of the enclosed, it might be of interest if you would publish figures showing rates of freight at, say, Karachi, Calcutta, Colombo, Madras, Cochin and Calicut. I should also like to hear what the shipping firms have to say to justify the difference between the rates noted in this cutting, and what we are now paying on the West Coast.

Yours faithfully,
(Signed) ANAMALAI.

CUTTING ENCLOSED.

Karachi Freight Market.

Karachi, December 23.

The tendency is yet lower in freight rates. Our market is lifeless, and Bombay seems in a like plight. There is now a very wide margin of difference between Indian and European markets in practically all produce, so that fresh business is impossible at the moment, and cargo is so scarce that any steamers in ready or near positions, that are not fully booked up, are likely to fare very badly and to have great difficulty in completing. The bookings reported this week total some 3,500 tons including Hull at 35 shillings, Antwerp at 36 shillings and three pence, Hamburg at forty-five shillings, for January and February shipment seeds cotton basis. There is also one charter advised for wheat, S. S. "Ravensrook," January forty-one shillings and three pence.—A. P.

NOTE BY EDITOR, "P. C."

We have discussed this matter with a gentleman *au fait* with freight matters, who gives us his opinion that the bookings referred to are for large lines, and not for such stuff as Estate Produce. In any case, it is hardly correct to compare West Coast freights with Bombay and Karachi, which, in tonnage matters, are a law unto themselves. In times of depression like the present, cargo is sometimes taken as ballast, rather than send a steamer away light, and there is no doubt that the rates now being accepted (as per cutting) are purely ballast rates No boat would go to the Malabar coast in these times for anything like these rates. It will be seen from a paragraph appearing elsewhere in this issue that a further reduction in West Coast freights has been made this week, but they can hardly come down to anything like the rates mentioned, and rather than accept such rates owners would lay up their vessels. As a matter of fact the shipping trade is getting into just such a depression as the tea trade is in at present, and, in the same way as planters do not accept 4 annas for their tea in London with pleasure and profit, neither do the steamship companies carry cargo at 35s,

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" Coffee.

(BY CABLE.)

LONDON, DATED 7TH JANUARY, 1921.

115s./- per cwt. Market Dull.

EDITORIAL NOTES.

The Ceylon Labour Ordinance.

We understand that, owing to the depressed condition of the Tea and Rubber Industries, the Ceylon Government does not propose to introduce the new Labour Ordinance at present.

The Planters' Chronicle at the Play.

On Wednesday, the Coimbatore Amateur Dramatic Society rounded off the Xmas and New Year festivities with a *Revue*, introducing a number of songs and dances from the London Revues which were much appreciated by the large audience present. The book of the *Revue* was written entirely by members of the Company, who are heartily to be congratulated on the immense success of their initial venture.

The following formed the cast of "Oh what Rot" !!!

The Duke of Beaminster	...Mr. E. Ballard.
Lord Liberty. Heir to the Duke Montague Sykes. A Crook	...Mr. H. Champion.
Jeremiah. A footman	...Mr. E. Vincent.
Mr. Scroggins. The Butler Hodge. A Bucolic	...Mr. D. G. Munro.
Miss Margot Magee. A famous actress	...Mrs. Teversham.
Toinette. Maid to Miss Magee	...Mrs. Ballard.
Lady Betty. The Duke's daughter	...Mrs. King.
Mary and Bertha. Housemaids	...Mrs. Dyson & Miss L. Grant.
At the Piano	...Mrs. W. J. Campbell.

Rubber Statistics.

The following authentic statistics relating to rubber acreages in Malaya, up to 31st December, 1919 should interest our readers:—

	F. M. S.	S. S.	Johore.	Kelantan, Kedah & Trengganu.	Total.
Estates over 100 acres in extent—					
Acreage in Possession ...	1,167,043	273.353	364,270	286 869	2,091,535
Acreage planted up.	736,742	178,524	174,820	146 720	1,236,806
Acreage Producing ...	490,372	114,516	96,324	50,774	751,986
Estates under 100 acres in extent—					
Acreage in bearing ...	220,000	(approx.)			
Acreage not in bearing ...	170,000	do.			
Total...	390,000	do.			

Land Grants.

According to the Ceylon papers, out of approximately 1,000 ex-service men and women entitled to benefit under the scheme, some 800 replied that they preferred cash down.

There is every reason to believe that Sir William Manning and Sir Graeme Thomson agree that a great deal of trouble would be saved, if all participants would accept cash down Both His Excellency and the Colonial Secretary, it is gathered, feel that, if a land grant scheme was initiated, Government and the participants concerned would land themselves in nothing but difficulties, not the least of which would be, it is felt, an insufficiency of capital.

The Incorporated Society of Planters.

This Society continues to gain ground in Malaya, and is proving more and more every day its practical worth. It is an immense pleasure to see how carefully its controllers have steered clear of the visionary ideas with which the Society was first credited. The "clean clearing" Essay competition is a striking instance, among many other just such practical schemes, of their sound common sense. We publish one of the winning essays in another part of this issue.

The Home Mail.

TEA.—Our papers from home tell us of a much stronger tone for all teas with useful leaf or liquor. Auctions closed a week before Xmas, and were expected to resume on 3rd January.

COFFEE.—The quantity offered was small, and prices remain unchanged. Locally, we are informed that early arrivals (in December) of new crop sold at about Rs. 54/57 and several small lots of a few tons each for delivery up to 15th of January at from Rs. 50 to Rs. 53 8, but these prices will not last.

RUBBER.—"Macson" in the "India Rubber Journal" says:—

> "We have successfully got over the first and heaviest prompt for December, otherwise nothing very cheery has happened this week.
>
> "The C. I. F. New York position, especially for rubber just about to land, under pressure of forced sale, has touched a very low point for sheets 10d. per lb., then 9¾d., now 9½d. per lb. This has helped to depress London landed prices, and the general drop in commodity prices in all markets has knocked much of the resistance out of holders in our market.
>
> "Singapore has been begging for orders, even at 9¾d for sheets.
>
> "New York itself was again weak. The Fisk Rubber Company passed its dividend, and rubber stock generally suffered in consequence of this fresh evidence of bad trading conditions there".
>
> "One of the most prominent Akron manufacturing firms is calling for a fifty million dollar bond issue to fund its present over-trading difficulties.
>
> "Our own home trade has been very quiet, with rumours of the possibility of passed dividends with changed board directors, and even the Bank of England nominating a new member of the Board of our largest manufacturing firm."

Reuters telegrams are more reassuring, and at the time of writing quote for Fine Hard 1s. 1¼d Feb./March, and for plantation (in the words of the telegram) flat, lower on scarcity of buyers and more selling pressure. Closed steadier 1s. 3¼d. 1s. 1½d. paid, sellers January. With exchange still hesitating at the 1s. 6d. limit, this is welcome news for Rubber Planters in S. India.

Ceylon Tea.

The following are figures of Ceylon Tea exported by rail *via* Tallaimannar to Stations in South India :—

	lbs.
Cannanore	5,230
Badagara	5,280
Mangalore	756
Madura	375
Tinnevelly	15
Calicut	1,235
Trichinopoly	1,470
Palghat	500
Madras	965
Dindigul	480
Tirur	1,478
Ramnad	448
Total ...	18,232

These figures are taken from the "Ceylon Chamber of Commerce" Weekly Price Current, dated 20th and 31st December, 1920.

COFFEE GROWING IN QUEENSLAND.

No. 1.

By T. A. BROMILEY, Instructor in Coffee Culture,
Department of Agriculture and Stock.

One of the multitude of economic crops Queensland has proved herself capable of producing to perfection is coffee. Years ago, under the guidance of an able instructor, M. H. Newport, it seemed likely that this crop would become one of our staple agricultural products. In the North a considerable aggregate area was planted ; the trees bore abundantly in some cases, it is averred, as much as 15 cwt. of beans per acre were garnered under favourable conditions and good cultivation.

The average for years was 10 cwt. per acre. Such results have been frequently obtained in the southern parts of the State, indeed surpassed. After nearly thirty years of cultivation of coffee in Queensland, the writer has never seen any form of disease attack the trees. Notwithstanding these most favourable conditions, the acreage under coffee declined. This falling off was the result of several causes. Perhaps the universal planting of sugar-cane, and consequent diversion of labour to the cane fields, had much to do with it in some districts, as coffee ripens about the time cane-cutting commences.

The dearth of labour would be acutely felt in the larger areas, and, as these conditions could not be altered, many fields went out of cultivation wholly, or in part, in consequence.

Another deterrent factor, for the small grower, at any rate, would be the lack of a marketing centre. Having, probably, no purchaser for his crop but the local storekeeper, who, in his turn, had only his restricted local market, could not but have a depressing effect, at least such conditions would not tend to the expansion of the coffee industry.

This state of affairs certainly obtained in the southern portion of Queensland. This disability the Minister of Agriculture will remove as far as possible, by a plan to be mentioned later in this article.

The novelty of the crop to Queensland farmers, no doubt, led to many mistakes in the field and handling of the harvest.

Until a larger settled population occupies the central coast districts, this scarcity of labour will continue near the canefields.

But there are whole tracts of country far removed from the canefields, eminently suited to the production of coffee in both the northern and southern parts of the State. It is quite possible that this difficulty of inadequate supply of labour for harvesting may be overcome by a system of co-operation, but the cultivation of the crop at present cannot be undertaken in the way of large estates. It is, however, especially suited to the small grower, with several children to assist in picking time. The harvesting finished, the balance of the year's work upon an acre or two would be very light, and would take but a few days. The coffee tree is as easily grown as any other fruit tree, and with less trouble and expense than some, as, so far, it has shown no sign of disease, therefore spraying and washing are not necessary. No special cultivation is needed beyond such attention as a careful fruitgrower would give to his trees. The yield per tree averages higher than in some coffee-growing countries.

The labour of harvesting the crop—that is, the picking of the berries—is well within the power of juveniles of ten or twelve years of age. The shrub will grow well and bear abundantly in any moderately fertile land out of reach of severe frost, and where there is an average yearly rainfall of, say, 38 inches. When the tree is established, it will stand spells of dry weather as well as any other crop we cultivate. Most newly opened scrub land, if undulating and naturally drained, is perfect for coffee, the yield abundant, and of high grade. But the shrub will accommodate itself to a greater range of soils and situations than some other fruit-bearing trees. The writer has seen it growing and cropping well on the sea-coast not more than a hundred yards from high water, and only 50 or 60 ft. above it, the soil being blady grass forest and in another district a few trees doing well in coarse, gritty, river drift. Of course, such soils and situations as these latter are not recommended, and are only mentioned to show the farmer, or others who would try coffee growing, that the land they have will answer, subject to the conditions of freedom from frost and with a fair rainfall. Light frost, if not too long continued, will not hurt the tree.

It will thus be seen it is not a question of "Will coffee grow in Queensland ?" nor of "Will it yield profitable crop ?" Those questions have long since been answered in the affirmative.

Not only does it bear heavily and regularly, but its product has been classed in London as amongst the world's best.

Latest figures of imports into the Commonwealth show that 2,605,240 lb. of coffee came in from overseas. Queensland ought to capture the bulk of that trade. It can, and must, be done. The state of our national finances demands that we send not one shilling away for what we can, with a little Government assistance to help over several initial difficulties, produce at home. What, it may be asked, is the nature of these difficulties ? Can they be surmounted ? With regard to the first question, reference to what has been written in the former part of these notes will show that they may be summed up under three heads. First, shortage of labour in some districts for harvest work. Second, need for a market at some central point where merchants and others might see that a first-class article can be produced in quantity in Queensland at a price, quality considered, almost, if not quite as cheaply, as from other parts of the world. The third obstacle is a minor one; still, it is an obstacle, but easily overcome.

With regard to the first, it is suggested that farmers, soldier settlers, and others following rural pursuits plant a patch as an auxiliary to their incomes. A few hundred trees, up to an acre or two, could be easily tended, as has been intimated above, and the remuneration, as will be shown later, very encouraging.

As a cover for poultry, a field of coffee has no equal. By the way, this feature might receive the attention of those engaged in poultry-raising in the warmer parts of the State. Light dressings from the fowl-yard would keep the trees in splendid health, and ensure maximum yields. The shade of the trees would do the same for the fowls. Then co-operation in the treatment of the berries, that is the "pulping" —taking off the red outer skin by means of a small machine called a "pulser"—followed by fermenting, washing, and drying.

In any co-operative effort it may be assumed the Government would assist.

The second condition has received serious consideration by the Honourable the Minister of Agriculture, who has taken steps to meet it by establishing the system so successful in cotton production—namely, to make advances upon coffee in "parchment" consigned to the Under Secretary for further treatment, that is, "hulling" or "peeling"—removing the inner or "parchment" skin—grading, and marketing. By this means the grower is relieved of the most difficult part of the work of preparing the beans for market; and, what is of paramount importance to the grower, his coffee will thus be placed under the immediate notice of bulk buyers. The amount of advance the Minister proposes to make is 7d. per lb. for properly prepared, clean parchment. Reckoning the yield per acre at 1,000 lb., a not at all extravagant estimate, the gross return would be £29 3s. 4d. The finished beans should be worth not less than 1s. per lb., which would be £50; but from this sum must be deducted the loss of weight of parchment skin, about 18 per cent., and the cost of hulling, which two items together would aggregate about £13 10s. This, deducted from £50 would, of course, leave the net amount of £36 10s. These calculations are based on pre-war prices. At present, higher rates prevail. Last year, 1919, the writer offered for parchment coffee 1s. per lb. for a ton or more; the offer was rejected. He bought cleaned coffee at 1s. 5d per lb., freight on. These prices may hold for some time, or they may not. But the prices mentioned above will continue, with the possibility of an advance. The trifling difficulty of unfamiliarity with coffee production by agriculturists Mr. Gillies has adopted means to remove, by the appointment of a Queensland coffee grower of many years' experience in all branches of the business to the position of instructor and inspector in coffee production. It is expected, when this gentleman shall have visited the farmers in such parts of the State as are climatically suited to the coffee crop, all difficulties and uncertainties will have disappeared.—("Queensland Agricultural Journal," Vol. XIV, Dec. 1920.)

INDIAN TEA ASSOCIATION.

ABSTRACT OF PROCEEDINGS OF A MEETING OF THE GENERAL COMMITTEE, HELD AT CALCUTTA, ON 21ST DECEMBER, 1920.

THE PRESENT POSITION OF THE INDIAN TEA INDUSTRY.—A telegram, dated 17th December, 1920, had been received from the Indian Tea Association, London, in the following terms :—

"Are there any indications estates going out of cultivation entirely telegraph."

And, it was decided to circularise members for particulars of the acreage and crops of any gardens which are closing down entirely, and also the acreage and normal crops of any gardens which will be kept in cultivation, but not plucked, during the ensuing season. Names of the gardens were not desired, and any information supplied in response to this reference would be treated as strictly private and confidential.

REGULATION OF SALES.—With reference to circular No. 47, dated 6th July, 1920, in which members were requested to refrain from selling privately so long as it was necessary to restrict auctions, it will have been noted from the proceedings of recent meetings, that the Committee have been in communication with the London Association with a view to this arrangement being continued. The latest cable advices from London indicated that, while the London Committee had supported the Calcutta Committee's recommendations not to sell privately so long as it is necessary to regulate sales and restrict output, unanimity among London members could not be secured, as several important agencies there had intimated that they could not bind themselves not to sell crops, or part crops, if opportunity offered. This being the position, the Committee had reluctantly to advise members that all restrictions as regards selling privately is for the time being suspended, although public sales will continue to be regulated to meet demand.

REGULATION OF TEA SHIPMENTS FROM INDIA TO THE UNITED KINGDOM.—(*a*) *Shipments from January*, 1921.—Members will have gathered from the recently published proceedings that the Committee have been in telegraphic communication with the London Association regarding the suggestion that the margin of 5% monthly of the estimated 1920 crop, which was adopted for shipments during the last three months of 1920, might be increased to 8% monthly from 1st January, 1921, to allow the current season's crop to be shipped by 30th June, 1921. Further cable advices from London showed that the London Association had agreed to shipments being restricted during January, 1920, *only*, to the 8% margin, and that the question of regulation during subsequent months would depend upon accommodation available in London, and would be considered when the December 1920 figures were available. It was accordingly decided to advise members that the Committee assumed this regulation arrangement for January, 1921, would be adopted automatically by those members who were now carrying out their undertakings in respect to shipments during October, November and December, 1920.

(*b*) *Shipments from Chittagong*.—A letter of 16th December from a member of the Association furnished particulars of protests made to the Superintendent of Jetties, Chittagong, against the percentage allotments, given by him to Chittagong shippers, on the basis of shipments in 1919 and 1920 Under this arrangement, the member was allotted a smaller percentage for shipments than that worked out by the Committee and published in circular No. 39 of 12th August, 1919, and, as the percentages in that circular had been arrived at after careful calculation, the member contended that these percentages should be adopted and be introduced with retrospective effect from 1st June, 1920, in order to equalise losses in the past.

The Committee were inclined to agree with the member's views on this question, and they decided to place the facts before the Agents of the Clan Line, and to enquire whether there was any reason why the percentages in circular No. 39—1919 should not be adopted.

INDIAN EXPORT DUTY ON TEA.—In a letter, dated 9th December, 1920, acknowledging receipt of the copy of the Committee's letter of 9th November, 1920, to the Commerce Department of the Government of India, asking for this duty to be withdrawn at the earliest opportunity, the United Planters' Association of Southern India communicated the text of a resolution passed by that Association on 9th December, 1920, in the following terms:—

> "That this Association address the Indian Tea Association regarding the advisability of sending a joint deputation to the Viceroy, pressing for the immediate removal of the export duty on tea."

The letter went on to say that, since the Southern India Associations made their representations to the Government of India, through the Government of Madras, on 15th October, 1920, the situation had become worse, and as the financial position of a very large number of privately owned concerns is now gravely critical, every endeavour should be made to expedite the removal of this export duty.

As the United Planters' Association had since learned from the proceedings of the meeting with the Controller of the Currency, and the Director-General of Commercial Intelligence, on 23rd November, 1920, that His Excellency the Viceroy had already been interviewed on the subject, the Committee decided to suggest to the Southern India Association, as well as to the Branches and local Associations, that all these bodies should convene special meetings of members, at which resolutions should be passed calling upon the Government of India to remove this duty immediately, in view of the severe crisis through which the tea industry is now passing.

UNITED PLANTER'S ASSOCIATION OF SOUTHERN INDIA, COIMBATORE.

1st January, 1921.

SECRETARY'S REPORT No. 1.

To All Members,
Executive Committee,
U. P. A. S. I.

DEAR SIRS,—Some time ago I promised, when Mr. Brock joined the staff, that I would try to inaugurate a regular system of periodical advice as to progress of work in regard to matters under consideration of the Association.

This report serves to start what I hope to make a regular weekly advice, touching briefly on such subjects as have made definite progress since my last report has been issued.

1. AMENDMENT OR REPEAL OF ACT I OF 1903.—The Government of Madras have warned us that the Government of India are more disposed to repeal this Act than admit amendment of it, in order that all cases of

Breach of Contract by labourers may be dealt with under one Act, common to the whole of India. The Government of Madras have constituted a Committee consisting of Messrs Congreve, Nicolls, Waddington,—Mr. M. C. Raja, an Honorary Magistrate, Diwan Bahadur Kesava Pillai, the Hon'ble Khan Bahadur Ahmed Thambi Marakkayar, and Messrs T. E. Moir, I. C. S., Commissioner of Labour, Madras, and Mr. J. M. Turing, I. C. S., Secretary to Government, Madras, Revenue Special Department.

The terms of reference are (*a*) whether Act I of 03 should be repealed or amended, and if so in what direction. (*b*) Alternatively whether Act XIII of 1859 as amended by Act XII of 1920 should be further amended. (*c*) Whether recruitment and control of planting labour should be governed by a single Act applicable to all areas in the Presidency.

It is proposed to hold the first meeting of the Committee on the 6th and 7th January.

2. RESTRICTION OF OUTPUT-RUBBER.—The R. G. A. confirm their cable advising that they cannot, in view of 70% of Producers in Southern India having accepted their scheme of restriction without reserve, grant any special concession to the Industry in South India as regards next tapping season. They also inform us that 75% of the members of the Netherlands Indies International Association, and four large concerns in Burmah, have agreed to a 25% reduction in output,

3. LAND FOR DEMOBILISED PLANTER SOLDIERS.—The Government of Madras have forwarded the resolution passed at the Annual Meeting to the Government of India, and advise that, in the absence of any application no scheme has been considered, and ask if we have in view any specific applications in this Presidency. As already advised in Report read at the General Committee Meeting on 6th December, Ceylon had prepared a scheme of grants of ten acres of land to be worked in combinations, individual grants of land will not be considered. Since that meeting we have heard from Malaya that Government adhere to their original scheme of making grants of 100 acres, 25% of which must be opened during the first year. We have asked all affiliated Associations to send particulars of all definite applications.

4. STOCKS OF TEA IN LONDON, AND MANUFACTURE OF CAFFEINE.—The Secretary of the S. I. A. in London advises that he has circulated copy of the resolution passed by the Central Travancore Planters' Association to members of his Committee, incidentally mentioning that the present price of Caffeine is 1d. per lb., possibly a mistake, for the price of tea from which Caffeine is manufactured is 1d. per lb.

5. COCHIN HARBOUR TRUST.—Government acknowledge receipt of resolution passed by General Committee on 6th December, asking that one of the members to be nominated by them on the Harbour Board should be a member of the planting community, and promise that the suggestion shall receive consideration when the Board is constituted.

6. BOILERS LAW COMMITTEE.—The Government of India have constituted a committee to report on laws at present in force regarding inspection and upkeep of boilers. A set of questions has been circulated, and the Committee will sit to hear witnesses at Coimbatore on the 14th—16th January. From enquiries made of District Associations, there would appear

to be only 2 boilers on estates in the Presidency, namely in the Nilgiri District, in Coorg 2, in Mysore 2, and in Travancore 10, of which 6 are railway engines, or steam Rollers. The questionnaire has been answered, and the Secretary will appear as a witness. The point of chief importance to planters is as to whether the man in charge of a boiler should be bound to hold a certificate from Government—this will be opposed.

7. S. I. P. WAR FUND.—The balance of the Fund in London, amounting to Rs. 6,200, has been received and credited to the Benevolent Fund.

8. REMOVAL OF EXPORT DUTY ON TEA.—As resolved at the meeting of the General Committee, we wrote the Indian Tea Association proposing a joint deputation to the Viceroy, but he has just visited Assam and appointed the Controller of Currency and the Director-General of Commercial Intelligence to enquire into the position of the Tea Industry, and make suggestions as to what remedial measures were possible. The Committee of the I. T. A. has discussed the matter fully with them, and urged the removal of this export duty as the first and foremost need.

9. ANAMALLAI-COCHIN RAILWAY.—As reported at the meeting on 6th December, the Railway Board advised that, owing to want of funds, it will not be possible to carry out the reconnaisance survey this season. On the 8th December, the Chairman and the Secretary of the U. P. A., and Messrs. Carless and Pittock interviewed the Dewan of Cochin, who is prepared to find the money necessary for the survey and for the construction of the line if guaranteed a return of 6% on the capital involved. The Secretary interviewed Colonel Barnardiston, Secretary to Government of Madras, P. W. D., Railways on the 10th, and he wired the Railway Board asking that, in view of the Dewan's promise to find the money, someone be deputed at once to commence the survey.

10. RUBBER GOODS FACTORY.—In accordance with the resolution passed by the General Committee, we asked the Director of Industries, Madras, to assist in obtaining the services of an experienced manager for such a factory. He recommended a suitable man, but we understand the proposal of starting such a factory to be in abeyance, owing to the difficulty of raising capital in the present state of the money market.

11. MYCOLOGISTS.—We await the definite reply of Mr. Ashplant as regards the appointment of a Rubber Mycologist. The Anamallais Planters' Association have been asked to select a suitable site for the erection of Bungalow and Laboratory for the General Mycologist.

12. RAILWAY RATES ON TEA.—Local merchants still maintain that there has been no increase in rates paid during the last year. The resolution passed at the Annual Meeting was communicated to the S. Indian Railway, who replied asking for particulars as to what portion of the line was concerned, this was furnished them, and we await further information.

13. IMPERIAL SHIPPING COMMITTEE, LONDON, was appointed by the Prime Minister in June, 1920, with the following terms of reference.—

(1) To enquire into complaints from persons and bodies interested with regard to ocean freights, facilities and conditions in the inter-Imperial trade, or questions of a similar nature referred to them by any of the nominating authorities, and to report their conclusions to the Governments concerned.

(2) To survey the facilities for maritime transport on such routes as appear to them to be necessary for trade within the Empire, and to make recommendations to the proper authority for the co-ordination and improvement of such facilities with regard to the type, size and speed of ships, depth of water in docks and channels, construction of harbour works and similar matters.

The matter was referred to this Association, and we have asked the opinion of the S. I. Association in London, all Firm and Company members of the U. P. A. S. I, and three Chambers of Commerce on the West Coast.

(Signed) H. WADDINGTON,
Secretary.

THE TROUBLE OF THE EXCHANGES *

There is no hope that international trade will resume its normal and natural course until something is done to introduce a feeling of stability and security in the exchange market. This problem is fundamental, and touches every corner of industry and trade. It is, perhaps, the most difficult of the many reconstruction problems thrown upon us by the war, because it is essentially technical, and it is quite useless to expect the average member of the public, or even the average member of the Government, really to understand anything about it. We have brought the public, through bitter experience, to know that when the £ sterling falls in value in New York the price of everything which we buy from America goes up in terms of our money; but why that should be, or what causes such a movement is a question which very few of us can ever hope to answer intelligently. J. H. Thomas, in *When Labour Rules*, takes our breath away with the promise that a Labour Government "would obliterate the exchanges on foreign countries which have caused such havoc since the Armistice. . . . To cut out the exchanges . . . would vastly simplify international business relationships." When a man in such a position as Mr. J. H. Thomas can write such absurd nonsense, it is difficult to blame the lesser lights of politics or the ordinary citizen for a failure to grasp the fundamentals of the exchange problem. Mr. Thomas reminds us of the late Mr. Dan Leno, who, it will be remembered, acting the part of a borough councillor, was faced with the problem of running trams up and down a hill, and settled it in his own inimitable way, to the delight of crowded houses, by deciding that they should run downhill only.

TWO MAIN QUESTIONS

There are two very different main questions which arise out of the exchange position. There is, first, the wide difference between the present figures and parity; and secondly, the incessant and violent fluctuations to which exchanges are now subject. Before the war the mark stood at about 20 to the sovereign, the franc at 25·25, and the money markets of the world were seriously perturbed if either the mark or the franc varied in value from time to time by more than a few pfennigs, or a few centimes. In 1914 we not only had definite par values, but we period. The mark ncee that values would not change materially in any short gs, or a few centim stands at anything from 170 to 280, and the franc at anything from 50 to 60

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* By courtesy of *Ways and Means*.

It will be seen that, in order to get back to the pre-war position, we have not only to re-establish the old rate of exchange, but also to bring about the old stability; this latter is really of far more importance than the actual rate. In the course of the last two months the mark has receded from 176 to 278, and the franc has gone back from 51·27 to 56·42.

If international trade has to wait for its complete recovery until we have reached the old parity of exchange, then it is perfectly certain that this generation will never witness import and export business upon the scale which was usual prior to 1914. For these reasons it is necessary to abandon any immediate hope of getting back to parity, and to see how far it is possible to revive and extend overseas business on exchanges as we find them to-day.

For the purpose of foreign trade, it does not really matter very much whether the mark stands at 20 or at 200, or whether the dollar is exchangeable for sovereigns at the rate of three or five. Whatever the rate of exchange is, it applies both to import and export, and foreign trade can be conducted. If the mark is only worth 200 to the sovereign, then the German will have to pay ten times as many marks for anything which he requires to import, but he can balance his account, because he will receive ten times as many marks as was previously usual for anything he is able to export. Such a position is by no means ideal; it does not offer the facilities which were provided by the old parity, but it still leaves the door wide open for trade on a large scale.

THE EFFECT OF VIOLENT FLUCTUATIONS.

When, however, the mark is liable to fluctuate to the extent of 100 points in a couple of months, trade becomes utterly and entirely impossible. It is easy to see that a merchant who entered into a contract on September 1st, when the mark stood at 176 to the £, would find himself in an impossible position if he made delivery on November 1st, with the mark standing at 278 to the £. In the short space of a couple of months the money which he was to receive or pay would be varied by no less than 50 per cent., and business under such conditions is unthinkable. The exchange problem (keeping for the moment to Germany for the purposes of illustration) boils itself down to these two questions: (*a*) Can we get back to parity? (*b*) Can we get back to stability? To ask the first question is surely to answer it; there is no hope within present prospect of a return of the mark to its relative international position of six years ago. If this were understood, acknowledged and admitted, a great deal of confusion of thought would be removed; the work of getting the mark back to the old parity is the work of half a century, and must be accomplished a point at a time by a long, slow, gradual and painful process. But this long task cannot be commenced until trade begins to flow, and such a beginning is rendered impossible by the instability of the present rate of exchange. It should not be difficult to arrive at what may be described as the natural rate of exchange, and if that were once reached and unnatural influences ceased to operate, then the merchants and traders of both countries would have a basis upon which they could confidently calculate, and trade could be resumed with at least the old amount of confidence and certainty. What applies to the mark applies to every other exchange: we only use the mark as an illustration.

THE EFFECT OF CURRENCY INFLATION.

How, then, can stability be secured in the exchange markets of the world? How can the violent fluctuations which are now a complete barrier to overseas development be obviated? What are the influences which bring about these violent fluctuations? A difference of five francs in two months in the value of the sovereign could not be accounted for by any ordinary trading operations between London and Paris. It is quite evident that outside influences are at work, and the most cursory examination of the problem shows that the most powerful of these outside influences are the operations of the world's Governments. When a Government inflates its currency and thus increases the prices of commodities at home, it depreciates the value of its own coinage and alters the exchanges of the whole world. When almost every Government is continually engaged in depreciating its own currency and adding to its own debt, the exchange market resembles nothing so much as a barometer during an earthquake, and trade and industry which involve transactions in different countries become impossible. This is undoubtedly the prime cause of exchange difficulties as we know them to-day. As the Brussels Economic Conference has pointed out, it is quite essential that the Governments of the Great Powers, at least, should take those steps which all economists are pointing out to them, and make their budgets balance. Most tax-payers overlook this tremendous consideration when they talk of national economy; they have a way of thinking that the spending of money by the Government is merely a matter of so many pence on the income tax; very few of them realise that the mere collection to money at home is a secondary trouble, and that the effect upon international trade of unsound Government finance touches directly the pockets and the comforts of every consumer in the land.

THE MALIGN INFLUENCE OF GOVERNMENT TRADING.

Next to Government economy must be put Government trading, when considering this subject of exchanges. If a few merchants buy a few millions' worth of German or American or Japanese products, the German or the American or the Japanese exchange moves a fraction, and that movement is promptly balanced by other merchants who, seeing an advantage in the altered rate, promptly proceed to do business in the opposite direction. Such transactions cause those normal fractional fluctuations in exchange rates which are incidental to international trading. When, however, Mr. McCurdie enters into a conspiracy with Sir Robert Horne and decides to purchase the entire wool crop of the world, or to decline to purchase any sugar for a given period; when trading transactions are conducted by politicians in scores of millions, then exchanges jump not by fractions, but by ten and twenty points at a time. The whole of the market of South America may at one moment be hanging upon the word of the Food Controller, who, at the bidding of his political associates, will with a stroke of the pen alter the whole course of the world's normal trade. This sort of thing plays havoc with exchanges. When Mr. McCurdie thinks he is being very clever over sugar, he is probably preventing Birmingham manufacturers from exporting brass products to Australia, or making it impossible for English paper mills to buy pulp in Canada. International trade is a highly complicated mechanism, a delicately constructed and sensitive organism, and the introduction of artificial considerations at any point of it has the effect of throwing out of gear the whole of its workings.

IF!—

If we could completely remove Government from the exchange market—that is, if we could bring Government procedure within such limits that exchanges were not liable to be affected by it—we should at once arrive at a natural rate of exchange between all countries. That rate would be very different from the old parity; but it would be natural, and this is the very essence of the matter: it would represent the actual financial position as between the various countries, and it would be free from the risk of very violent fluctuation. The £ would then proceed to get back to parity in New York by half a cent at a time; the mark would slowly move towards parity in London, a pfennig or two every month, and a natural process of recovery would be begun which would enable real reconstruction to proceed. Merchants, manufacturers and traders everywhere would be able and willing to operate upon a natural exchange. They could measure the changes of movement in figures if those changes were confined to natural causes. Nobody would hesitate under such conditions to enter into an obligation with a foreign country, knowing that the risk of exchange fluctuation was reduced to a few points either way, and could be allowed for. When, however, that risk includes the possibility of some Government operation which will radically alter the rate of exchange, no business can be undertaken.

CONTINGENT TROUBLES.

It is, perhaps, hardly necessary to point out that the problems of unemployment and the cost of living, the two most troublesome of all the questions facing mankind at present, are intimately mixed up with this question of exchange, and will not be satisfactorily solved until a much more settled state of affairs prevails. The connection between the three problems can be stated very simply. A Government issues a new loan, or borrows from the banks, and looks to industry to find the taxes to cover the operation; but the operation causes a jump in the exchanges, makes it necessary to cancel foreign orders, or impossible to enter into foreign contracts; thus causing works to close, unemployment to increase, and the cost of commodities to rise. When this process is complete the Government starts borrowing again, in order to relieve the distress which it has itself caused: the very borrowing accentuates the trouble, and so we go from bad to worse.—"Export World and Commercial Intelligence".

IS CLEAN-CLEARING COMMERCIALLY SOUND?

On this question a consideration of past and present planting practice and its significance is informative.

In the past, after the burn, very little if any of the jungle timber was cleared and no stumps, both the surface timber and the stumps being left to decay and disappear in the ordinary course of nature.

Later experience proved, through the incidence of disease, the ravages of whiteants and difficulties connected with weeding clearings, that this was not a very far-sighted policy and was modified. Some estates removed part and others all surface timber, but in only few cases was any attempt made to remove stumps at or near the time of planting.

Reference has been made to weeding difficulties on uncleared land. This is not subject to any local variation, it having been almost universally found that clearing timber when the clearing is, say, some 2 years old, leads to a great increase in weeds and the weeding cost, the seed appearing to lie dormant under the logs, sprouting to pernicious plenitude on exposure.

Similarly many a shock has been received when a promising young clearing was found to be full of Root Disease, trees leaning in all directions over a hopeless tangle of timber, signifying heavy clearing and recurrent disease treatment costs, with loss of trees.

Experiences of this nature have led to the consideration as to whether it would not be better to clean clear both surface timber and stumps at the start, thus providing effective plant sanitation and *preventing* disease, whilst also effecting the most favourable conditions for cheap weeding, and this is only the logical development to follow on from the gradual progression from ' laiyez faire' to the partial clearing methods now in vogue.

In practice the question really resolves itself into one of the time at which clean clearing should be effected. Practically all old estates have got rid of their surface timber, and most of their stumps, to part with the remainder would be no cause of regret. Timber and stumps are regarded as an expense and a menace, and it is the ultimate hope of all estates to be rid of them. The present question is however one of taking active steps for their riddance in the early days, to boldly incur the expense involved, if that can be demonstrated as commercially, i.e., financially sound ; on the basis of the initial heavy expenditure being compensated by later saving, and by better or more vigorous cultivation.

Among the advantages claimed for non-clearing are:—

(*a*) cheap capital cost, the ability to bring the clearing into bearing at a very low cost figure per acre.

(*b*) saving in labour force required.

(*c*) prevention of surface wash, timber breaking up the rush of water during heavy rain thus holding up silt.

(*d*) by the incidence of (*c*) avoidance of the need of silt-pits, contour drains, etc., necessary to avoid wash if timber is removed.

(*e*) if disease does not show up seriously timber can be left to rot with less expense (as the timber, is less) when and, if clearing is ultimately done.

(*f*) that removal of surface timber does not prevent disease, that disease originates on the stumps, the spread along surface timber being secondary only, hence that it is sufficient to clear timber when, and if disease arrives and the stumps have to be attended to, and that by that time decay will have reduced the amount of surface timber, and hence the cost of its removal.

Now to examine these contentions.

(*a*) *Capital Cost.*—(1) The initial outlay under clean clearing is larger, but it is final. Timber clearing and stumping, and where the lie of the land requires it, measures to prevent soil erosion having been done during the opening stages of clearing, no further capital expenditure other than weeding, and possibly pink disease treatment, pruning, etc., is necessary. When the clearing comes into bearing all the revenue is often called upon to pay for uncompleted real revenue ; under the old method revenue is capital work, and a large sum must be kept in reserve for these contingencies, or be found when necessary, and is, therefore, not available as profits for dividends.

(2) The clearing is put on a healthy basis at the *start* there will be *no root disease* if stumping is properly carried out. Therefore in considering the original outlay regard must be paid to recurrent disease cost and the pest (root disease) revenue charges of mature rubber which are all saved.

(3) A further saving may be effected under "Thinning Out," as with a guarantee of a healthy clearing, trees may be planted at or near the final stand per acre figure (say) 60 to 90 trees per acre, as losses from disease are not to be feared, this also means that trees are never over-crowded or hampered in their growth ; it is also a safeguard against pink disease and tapping bark diseases, (black thread, etc.) diseases, which only flourish in dark heavily shaded areas.

(4) The whole area is in effective bearing at the same time. The disease patches of varying sizes (which sometimes occurs), with supplies of a year or so old, as against the neighbouring original trees of 5 or 6 years do not arise, thus the loss on bearing area is prevented.

(5) By clean-clearing an assurance of cheap and safe weeding is secured. For in addition to avoiding weeds under the incidence of later timber clearing as previously outlined; where a clearing from which no timber has been taken, gets into a bad condition through labour or other troubles, lallang or needle-grass having got a hold, the difficulty of eradicating it is enormously increased by the timber, as it hampers changkolling and harbours grass seed, as well as making supervision difficult as every part of clearing must be seen in detail. Also by taking stumps of expense of cutting off sprouting bluker, attaps, bamboos, etc., is done away with thus further cheapening the weeding.

Therefore to summarize; The original Capital Cost should be taken to include :—

(1) revenue root disease and whiteant charges by avoidance.

(2) thinning out charges by adoption of final planting distances.

(3) much pink disease and bark diseases expenditure, by open planting making conditions unfavourable.

(4) assurance of healthy clearing.

(5) „ „ cheap weeding.

(6) known capital expenditure, elimination of reserves for these purposes, all crops available for profits, no revenue appropriations for capital purposes.

(*b*) Labour Force. The saving alleged for the old method is apparently not real, as the work of clearing is merely spread over an extended period, with this addition, that pest work amongst the rubber trees is *extra work* which would be avoided under clean-clearing. Also clean-clearing can be done at a chosen time when labour is available at reasonable rates and capital to hand. It will not be necessary to secure labour at possible sacrificial rates *for clearing at a later date* when disease or weeds have made it imperative, and when possibly a drop in rubber prices makes money short and the expenditure a strain.

(c) (d) PREVENTION OF SURFACE WASH. Lying timber does to a certain extent hold up silt, but it is not entirely effective, further when timber decays or is later removed, siltpits or other devices become necessary. Why not put them in at the beginning as later on? It does not effect a saving, except on upkeep, but merely a postponement, and against the upkeep saving is the only partial effectiveness of timber as soil-holders, the risk of disease, whiteants and to weeding.

(e) (f) DECAY OF TIMBER & STUMPS REDUCING COST OF CLEARING. This is an almost entirely fallacious argument; by the time disease has shown up it is in the rubber; the cost of removing diseased trees and chankolling areas is all due to the spread from the stumps. Therefore the cost of treating this must be added to the cost later of timber and of stump clearing, when making a comparison with original clean-clearing cost. Further where there is no rubber, timber can be piled round stumps or in any other way convenient for burning, without regard to damage to rubber trees. By burning stumps down to the ground, extraction of the roots is facilitated, further mechanical contrivances if effective ones are ever put on the market could be used to pull over stumps, if there is no adjacent rubber to be damaged; all this makes for cheaper working. On the other hand if the work is done amongst growing trees great care must be taken to avoid damage, where there is a lot of rubber this is very difficult and expensive. The writer's method of meeting the position when burning timber was to dig pits at convenient distances and carry or roll all timber thereto. This was not cheap work but cost *more* per acre than original clearing of surface timber would have done, but damage to trees was avoided.

Of course a certain amount of moderation must be used in clean-clearing stumps, root extraction need not go much below 2 feet, as fomes does not exist at a lower level. Porea goes to a greater depth, but all appear to start near the surface. Prompt extraction to 2 or 3 feet therefore prevents the spread to a greater depth and renders the field safe.

Again where large stumps are encountered of a nature requiring a disproportionate expenditure of labour and money for its extraction, these may be rendered innocuous by isolation and taking out all lateral roots which extend beyond the isolation drain. These isolated stumps if desired, as a further precaution can be burnt out: a successful method of burning out with charcoal is given by Petch (*).

In concluding the comparison, clean-clearing will not appeal to the small man or the company with a small capital, one relying on utilising

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(*). Physiology and Diseases Hevea Brasiliensis (Petch) p. 150.

"Earth is cleared away from the stump to a depth of 3 feet and for 3 feet around it, timber is put in the pit to a depth of 1 foot, this is covered with live charcoal, this again being covered with grass or bark, the whole is then covered with earth which is firmly pressed down, all timber in trench must be properly covered. The fire will continue for weeks until the roots and stump burn away."

"AVIS."

its revenue to put the estate in order; or to the speculator who wants to float of a company with the smallest expenditure and largest sale price, leaving the buyers to put the estate right. But for companies which have a sufficiency of capital and a permanent interest in the property, it is undoubtedly the soundest policy, as it is cheapest in the long run.

In addition to the foregoing there are other general questions which must be borne in mind. These tend to further upset the general contentions of the non-clearing school, which are based on a policy of expediency. Will the same policy be adequate to the future? There is at present a labour shortage, and the cost of labour is steadily mounting. Disease at least in the form of Brown Bast has not yet been relegated to the limbo of bogies, and our sale price for rubber is as erratic as the English climate.

Clean-clearing means prevention, a sound beginning and a regulated future, with determinable costs.

Non-clearing means doing the minimum enforced and speculative planting. The industry has now passed beyond the speculative stage, and it is time for business methods to be adopted. The first business principle to ensure success is soundness, the taking of no unnecessary risks. Clean-clearing meets these requirements. Two unnecessary risks of root disease and weeding complication are eliminated, and by avoiding arrears of work a labour shortage is rendered less serious, as there are fewer avenues for trouble to the estate. Further provided clean-clearing was generally adopted, by the necessary labour limitation, extensions would be evenly distributed over the years, with an even arrival of rubber on the market, a factor which would make control of prices more possible, which in itself would make clean-clearing commercially sound. AVIS.

SHORT ADVERTISEMENTS.

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A Medium Paragon Drier about to arrive from England, complete with stove, etc., from Marshall Sons & Co., Ltd.

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RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" Coffee.

(BY CABLE.)

LONDON, DATED 14TH JANUARY, 1921.

114s./- per cwt. Market quiet.

THE PREPARATION OF PLANTATION RUBBER.

In 1918, the Malang Experimental Station published a paper (1) on the premature coagulation of latex owing to dilution with water containing lime-salts (bicarbonates of calcium). The well-known Dutch Chemical Engineer, J. C. Hartjens, has followed this up with a further contribution to our knowledge on the chemical side of the preparation of plantation rubber which is published by the same station, (2) and is of some interest to rubber planters. It is perhaps unnecessary for us to repeat here the annoyance caused by this premature coagulation. At various periods in our experience we have seen how rubber is liable, without the addition of any extraneous substance, to coagulate in the cups, the buckets, the pans, or bulking jars and tanks, in each successive stage in fact of its progress from the tree to the finished product. We must all remember the controversies which have raged round the addition of water, either in the cup, or in the factory, and Rubber Planters, no doubt, equally remember the unfavourable reports from home when the percentages of first latex crepe or sheet have fallen below certain standards. This formation of lumps in the latex has been found to be largely due to the dilution of latex with water showing a high content of lime salts, and the Dutch author even goes so far as to say that the phenomenon has been particularly noticed on Estates with very calciferous soils. In the previous paper he advised the use of "Permutit" filters as a means of reducing the content of lime salts in water to a low figure. Further experiments have now been made, and these form the basis of the paper under review.

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(1) Archief voor de Rubber cultuur, II (1918), Pages 163-187.
(2) IV (November 1920), No, 9.

In 1919, the British and Dutch Engineering Co. Ltd, of Somabaya, carried out tests in co-operation with the chemist Verheul with the object of freeing water of its lime salts. The water, with the addition of alum, was filtered through a Jewell filter, and the results claim a reduction of lime salts of 57%. Dr. Hartjens, making similar experiments under the same conditions, but with the addition of varying quantities of alum is unable to support this, and in fact says that he obtained no reduction at all of lime salts by this method. He seems to have expected this result, as the amount of sulphate of calcium formed by the treatment with alum was less than the amount corresponding with the solubility of sulphate of calcium at the same temperature.

Experiments were then made with the use of fluid lime or dry powdery slaked lime. A solution of slaked lime (10 c.c) was added to 750 c.c. of spring water containing a high percentage of lime salts. Other samples were made up with the same water, but with 15 c.c. and 20% c.c, respectively of the slaked lime. The results showed a fair reduction, and further experiments carrying the proportion up to 49 c.c. of milk of lime to 750 c.c. of water, reduced the lime salts to a minimum. Increasing the amount of lime salts had a reactionary effect, and the amount of 49 c.c. which had been calculated theoretically proved to be the correct one in practice.

An installation was therefore built consisting of 2 tanks, with taps at the bottom to draw off the clean water after the lime salts had been precipitated. This clean water was led by pipes to a shallow tank and pumped the upper tank of a Jewell filter, which during the experiment, was used into only as a sand filter, no alum being added. The calculated amount of powdery slaked lime was added to the water in the tanks and thoroughly mixed, after which it was left unstirred for some hours. The results showed that this method could be satisfactorily carried out in estate practice, one sample showing a reduction from 138 mgr. CaO per litre to 6·7 mgr. CaO per litre after 16 hours of undisturbed precipitation.

Having arrived at the method of treating the water, it remained to study the effect of the treated water on latex in the bulking tanks. The results were most convincing, and showed clearly that the water which had not been freed of lime salts had the effect of causing early coagulation. Water which had been treated as described above had no effect on the latex, and is compared with the advantages obtained from using rain water or distilled water. It is often the case that experiments in the preparation of plantation rubber, while successful in the Laboratory, give negative results in Estate practice. In this case, to show that the same results can easily be obtained by the staff of an Estate, the Manager of Soember Soeko Tangkep Estate was asked to carry out similar experiments. The results show that, in practice, the staff of a Rubber Estate is quite competent to get the same results as the Scientists.

The practical importance of these experiments is of course very great. In certain parts, the wells on Rubber Estates show a very high content of lime salts. As we have already said, premature coagulation, we know by experience in South India, is a constant source of worry and actual financial loss. Rubber which otherwise would make up into good sheets may have to be creped, and even here, we believe, it is not possible to make standard first crepe with these lumps. A simple and inexpensive system such as that described is therefore of the utmost value to us all. Summing up; by adding a known proportion of lime to the water used in Factories, and afterwards plain filtering it, the occurrence of premature coagulation is practically avoided, whereas, diluted with ordinary spring water the latex will invariably show heavy curdling, and the formation of big lumps in the mixing tanks. Arising out of these experiments, also, we have the fact that on those estates without wells, where more or less dirty river water is used, an advantage of some importance is to be gained by first filtering the factory water in a Jewell filter with the addition of alum. This will clarify the water, which should then be treated in the manner specified above where it is known that the water contains a high content of lime salts.

SHEVAROY PLANTERS' ASSOCIATION.

MINUTES OF AN EXTRAORDINARY GENERAL MEETING OF THE SHEVAROY PLANTERS' ASSOCIATION, HELD AT THE VICTORIA ROOMS, YERCAUD, ON THURSDAY, 13TH OF JANUARY, 1921, AT 2 P.M.

PRESENT.—Mrs. V. A. Lechler, Messrs. W. Rahm, C. Rahm, Rev. Father Studer, C. Dickins, H. S. Dickins. Visitor—Mr. G. B. E. Foote.

The poor attendance at this Meeting is owing to the heavy rains we are experiencing, and difficulty of members in the District to come in.

The minutes of the Meeting held on 25/11/20 were read and confirmed. The Hon. Secretary read a few notes on the proceedings of the General Committee Meeting, U.P.A.S.I., held in Coimbatore on 6/12/20, a report had not been prepared, as a full account of the proceedings had appeared in the Chronicle. Matters connected with labour recruiting that had continued in the District, despite the S. P. A. having joined the U. P. A. S. I. were freely discussed. Mr. Dickins was of opinion that this would cease in the future.

The matter of enhanced subscription was discussed, and in view of a letter received from the Assistant Secretary, U.P.A.S.I., it was decided to collect the balance of subscriptions due for 1920 immediately.

THE PROPOSED ARRACK SHOP IN YERCAUD.—Read letter from P. Macqueen, Esq., I. C. S., Collector of Salem, regarding the proposed opening of an arrack shop. The Honorary Secretary pointed out that, as the matter concerned all residents on the Shevaroys, he had, in conjunction with Mr. R. F. Carey, Chairman of the Union, and Rev. J. F. Spencer, circulated a notice asking those who protest to sign the notice; 99% of the European residents had protested, and also a large number of Indian residents.

> RESOLVED.—" That this Association strongly protest against the proposed opening of an arrack shop in Yercaud, or any other place on the Shevaroys, and consider the existing Toddy shops in Yercaud and at Moolvy, and the Foreign Liquor shop in Yercaud quite sufficient to meet the requirements of the inhabitants of Yercaud and Shevaroys.

GRANT OF LAND TO DEMOBILISED PLANTER SOLDIERS.—The papers connected with this subject were still in circulation. The Honorary Secretary had received no enquiries up to date, after the papers came in he would inform the Secretary, U. P. A. S. I.

CORRESPONDENCE.—Letter from Mrs. V. A. Lechler *re*. Green Hills Road (Bridle path).

The Honorary Secretary was requested to obtain full particulars from the President, Salem District Board, regarding maintenance grant for this road. Members from the Green Hills complained about the unsound state of the bridge over the Authieur stream, and the difficulties of crossing.

With a vote of thanks to the Chair, the Meeting terminated.

(Signed) H. S. DICKINS,
Hon. Secretary and Chairman.

NORTH MYSORE PLANTERS' ASSOCIATION.

PROCEEDINGS OF AN EXTRAORDINARY GENERAL MEETING, HELD AT BALEHONNUR, ON MONDAY THE 13TH DECEMBER, 1920.

PRESENT:—Messrs. E. W. Fowke, R. G. Foster, H. Browne, G. R. Frend, F. W. Hight and W. H. Reed (Hon. Secretary).

VISITOR:—Mr. H. D. Rice.

Mr. C. H. Browne being absent, Mr. R. G. Foster was voted to the Chair.

Proceedings of the last meeting were confirmed.

L. A. N. INSTITUTE.—Proposed by Mr. Fowke and seconded by Mr. Foster:—"That we discontinue our subscription to the L. A. N. I., as we consider it a matter for the individual." Carried.

LABOUR DEPARTMENT.—After considerable discussion it was resolved:—

> "That this Association is unanimous in their condemnation of the way in which the Labour Department in South Kanara is being conducted. It is understood that the Mysore Circle has had their staff strengthened by an Assistant,"

> "That South Kanara, the recognized recruiting area of Mysore Estates, is being yearly more and more exploited by other planting Districts of South India."

> "That an Assistant to the Department be appointed for the safeguarding of Mysore interests, and that, with a view to more efficient control, there should be sweeping changes in the *personnel* of the staff, and an entire reconstruction."

ROADS AND COMMUNICATIONS.—Proposed by Mr. Frend:—"That the M. L. Council be requested to bring to the notice of the President of the District Board of S. Kanara the present disgraceful state of the ghaut section of the Bhund Ghaut." Carried.

Proposed by Mr. Fowke and seconded by Mr, Foster:—

> "That the Mysore Government be requested to put in hand, at an early date, the Kalasa bridge, which is badly needed and, would greatly help to open out a very backward part of the Kadur District,"

The Meeting terminated with a vote of thanks to Mr. Hight for the use of his bungalow.

(Signed) W. H. REED,
Hon. Secretary.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Secretary's Report No. 2.

To All Members,
The Executive Committee,
U. P. A. S. I.

COIMBATORE,
8th January, 1921.

DEAR SIRS,

1. RAILWAY RATES ON TEA.—In continuation of para. 12 of my last Report, the South Indian Railway have written to say that the old special rates for Tea, in 160 maund loads from Kodaikanal Road and Dindigul to Tuticorin, have been reintroduced as from 1st December, 1920, and 1st January, 1921, respectively, for a period of one year.

2. ELECTRIFICATION OF THE NILGIRI RAILWAY.—With reference to the resolution passed at the Annual Meeting, which was forwarded to the Government of Madras, a reply has been received to the effect that the Home Board of the South Indian Railway have advised that, though the scheme is a desirable one, it should be deferred for the present in view of the financial conditions now prevailing, but that the Consulting Engineer has the matter in hand for further consideration.

3. SHIPPING FREIGHTS.—Advice has been received that the shipping freights from the West Coast Ports have been further reduced, the rates for the month of January being:—

Tea and Rubber	...	97s/6d per 50 c.ft.
Coffee ,,	...	90s/ per 18 cwts.
		less the usual 10% rebate.

4. Civil Supplies Committee.—This Committee, which was constituted by the Government of Madras on 16th June, 1919, and of which the Secretary of the U. P. A. S. I. was a member, has been dissolved by G. O. No. 2208, Revenue (Special), dated 14th December, 1920.

(Signed) C. H. BROCK,
Asst. Secretary.

RUBBER NOTES.

THE POSITION AND PROSPECTS.

An Authority's View.

Considering the perplexity with which the position of rubber at the present time is viewed by the average investor, the following expressions of opinion should be of interest as well as assistance. They represent the considered view of a City man who has been closely in touch with the Rubber Share Market since its inception, and indicate an attempt to answer, without shirking the facts, questions that investors as well as Directors of rubber companies are asking at the present time.

"Are the causes of the present depression permanent or temporary," our informant was asked.

"The causes of the depression in the Commodity Market," he replied, "are partly general and partly special, but entirely temporary. In so far as the depression has resulted from the process of deflation which is going on in all directions—the calling in of loans by the banks, the restriction of fresh credits and the consequent damping down of enterprise—the causes are general, and rubber is affected in common with other commodities. It should be remembered, however, that there has been no inflation in the price of rubber during the war period.

"The average price of plantation rubber for 1914 and subsequent years has been :—

	Per lb.
1914	3/0¼
1915	2/6
1916	2/10¼
1917	2/10¾
1918	2/3½
1919	2/1¼

"In July, 1914, the price was 2s 4½d per pound, and the present quotation of 1s 1d is actually below the cost of production upon many estates. It will be seen, therefore, that a recovery to double the current figure would merely re-establish the pre-war price.

Special Factors

"Turning to the question of special factors affecting rubber, there is no doubt that trade and labour difficulties among rubber manufacturers in the U.S.A. had a detrimental effect in the earlier part of the present year. Another adverse influence has been the existence of a speculative position, resulting, as usual, in the collapse of weak 'bulls.' The delay in restarting commercial relations with Russia, and the fact that Germany (owing to adverse exchange, etc.) has so far been able to take only a fractional part of the rubber she urgently needs, are both causes which—although in one sense general – have borne with special severity upon the rubber planting industry. None of these causes could be described as permanent, but this leads to the consideration of the second question."

Do you anticipate a long period of the present depression in rubber ?

"The immediate future appears to be governed largely by market factors. The speculative position built up in 'forward' transactions has undoubtedly been the immediate cause of the recent spasm of weakness, involving failures on both sides of the Atlantic. Considerable nervousness exists as to how commitments falling due up to the 31st December will be met, and if further failures occur it is quite possible that the price of rubber may dip still lower before a recovery comes. This would mean, however, the passing from weak into strong hands of the surplus of rubber which is hanging over the market, and should result in the hastening of an upward reaction. The curtailment of tapping, initiated by the Rubber Growers' Association, will soon begin to have an effect, and as the stocks of manufactured rubber goods become depleted, a more normal demand for the raw material is bound to arise.

A Sharp Recovery.

"Judging by experiences in the past, it is likely that when a recovery begins it will be a sharp one. There is no probability of the price of rubber remaining at 1s. 1d. per pound for any lengthy period. The trouble has been caused by a combination of various depressing factors, any one of which by itself would not have been able to put down the price to a really serious extent. On the other hand, the important point to remember is that we are now in a period when, for several years to come, no large areas of fresh rubber will be coming into production. As the adverse influences one by one pass away, the position of the rubber planting industry will become exceedingly strong, and it will take very little time for the surplus of rubber which just at the moment looms so large to melt away."

Combined Selling.

Can you suggest any further steps that could be taken by rubber producers to improve the position of the industry ?

"In reply to the third question, there is one obvious remedy—namely, combined selling—for the sort of thing which we are at present experiencing. Hitherto it has been found impossible to secure the needful co-operation of the various interests involved, but in view of the great progress which has been made during the last seven years, as evidenced by the speed and promptitude with which the output restriction scheme of the Rubber Growers' Association has recently gone through, it may not be too much to hope that rubber producers will come together like sensible men, and make arrangements to sell their produce at a reasonable figure. They possess what is practically a world monopoly, and at the present moment could be selling every pound of their produce at half-a-crown if they refrained from pressing supplies upon an unwilling market. By selling through a suitable association of producers, it ought to be possible to eliminate violent fluctuations of price. Nothing would so greatly encourage manufacturers to adopt an expansive policy as the knowledge that, for at least twelve months ahead, they could count upon rubber keeping at a steady price—whether 2s or half-a crown would matter little compared with the certainty of steadiness."

INDIAN TEA ASSOCIATION.

ABSTRACT OF PROCEEDINGS OF A MEETING OF THE GENERAL COMMITTEE, HELD AT CALCUTTA ON 4TH JANUARY, 1921.

CORRESPONDENCE WITH THE INDIAN TEA ASSOCIATION (LONDON).—Letters, dated 2nd and 9th December, 1920, from the Indian Tea Association (London) which had been circulated, were to be recorded. The principal subjects dealt with were :—

(a) *Port of London (Consolidation) Act*, 1920.—It was noted that a joint representation from the Indian, Ceylon, China, and South Indian Associations in London, had been lodged with the Port of London Authority, regarding the high rates and other charges levied on importers of tea entering the Port of London, with a view to these charges being reduced to the lowest point compatible with meeting the cost of the services rendered.

(b) *Trade relations with Russia*.—As it was understood that the Department of Overseas Trade in London were somewhat discouraged by the absence of support to their endeavours to arrange trade relations with Russia, the London Committee made it clear to that department that tea growers favour the resumption of business, if a basis for trade can be arranged.

RESTRICTION OF 1921 INDIAN CROP.—The object of the Committee's circular No. 77, dated 10th December, 1920, which contained full particulars of the 1921 crop restriction proposals, was to obtain figures showing the extent to which Indian controlled concerns would support the scheme. So far, undertakings representing over 44 millions lbs. have been received, and, as the London Association have cabled again for these particulars from Indian controlled concerns, the Committee trust that the several members who have still to submit their replies will do so with the least possible delay. It is an essential condition to the carrying out of the scheme that adherence is obtained in respect of 85% of the Indian tea industry. The necessary support from London controlled concerns has been obtained in London, the support of Indian controlled concerns is now being ascertained here, and, once this has been secured, together with the support of Ceylon producers, the scheme will be put into operation.

THE INDIAN EXPORT DUTY ON TEA.—As arranged at their meeting on 21st December, 1920, the Committee wrote to the United Planters' Association of Southern India, and to the Branches and local Associations, explaining what had been done to get this duty removed, and recommending these bodies to convene special meetings to pass resolutions calling upon the Government of India to take immediate action in the matter. The following cable was also addressed to the Indian Tea Association, London :—

> "Export duty tax we are agitating for repeal Branches co-operating can you assist by representations to India Office or otherwise"

The question is engaging the attention of the Committee, who are considering what more can be done to have the tax withdrawn at the earliest opportunity.

REGULATION OF TEA SHIPMENTS FROM INDIA TO THE UNITED KINGDOM—(*a*) *January* 1921 *shipments*.—With reference to the intimation in circular No. 80 of 22nd December, 1920, to the effect that the regulation arrangement for January, 1921, under which tea shipments from Calcutta and Chittagong were to be restricted to 8% monthly of the estimated 1920 crop of 350 million lbs., would be automatically undertaken by shippers who were parties to the arrangements affecting shipments in October, November and December, 1920, a member asked for more definite information regarding the support for this arrangement before agreeing to it. The member estimated the 1920 crop would be nearer 320 million than 350 million lbs., and he suggested that restricted shipments should be based on the actual outturns of 1920. In discussing this question, the Committee bore in mind that the main reason for restricting shipments is to prevent a repetition of the experience of January, 1920, when seven steamers were diverted to outports because there was no accommodation in London. They were inclined to agree that a more definite basis for individual shippers might be instituted, through which a better estimate could be made of the percentage of the membership which agreed to the regulation arrangement, and, with this object in view, the Secretary was instructed to submit, for the consideration of the Committee, a brief summary of the arrangements, made during 1920, for regulating shipments from India to Great Britain.

BOILER LAWS COMMITTEE.—It was mentioned in the proceedings of 21st December, 1920, that the Association had been requested to nominate a representative to give evidence before the Boiler Laws Committee during their short stay in Calcutta. Through the kind offices of Messrs. Duncan Bros. & Co., Mr. R. M. White, their Inspecting Engineer, had been secured to represent the Association, and it was subsequently arranged that the Chairman, Mr. A. D. Gordon, would accompany Mr. White to support his evidence, which was required on 6th January, 1921. In connection with the questionnaire submitted by the Boiler Laws Committee, it is recollected that, in reply to a reference in January 1917 from the Marine Department of the Government of Bengal, regarding a proposal to extend the Bengal Steam Boilers and Prime Movers Act, 1879 to the places in the Presidency, including the tea growing districts, where it was not in force, the Committee of that time said they saw no necessity for the proposed extension, and that they did not therefore favour the proposal. With this view the present Committee agreed, and, in anticipation of the appointment on 6th January, 1921, it was now decided, to address the President of the Boiler Laws Committee with reference to the above correspondence, and to explain that for the reasons, (1) that inspections were unnecessary, (2) that the expense entailed was too great, and (3) that the proposal was impracticable, the Committee were opposed to inspections being undertaken of boilers in use for the needs of the tea industry in the tea growing districts.

TEA CULTIVATION IN AFGHANISTAN.—In connection with a reference from the Afghan Agent, Peshawar City, regarding two competent men required to help in extending tea cultivation in Afghanistan, the Committee decided to suggest that the Agent might advertise for suitable men.

THE AFRICAN OIL PALM.

A NEW PLANTATION INDUSTRY.

The well-known palm oil and palm kernels of commerce are both obtained from the fruit of the African oil palm. The oil occurs in the fleshy pulp which surrounds the nuts. Both materials are at present produced from trees growing wild in the forests of West Africa, and largely in British West Africa, where the industry is a most important one. Large quantities of palm oil are used as food in West Africa, and, in addition, many thousands of tons are sent annually to the United Kingdom and other countries where the oil is used for making soap and candles, and to some extent for the preparation of edible fats. There is also a large export trade in palm kernels, the oil of which is largely employed in the margarine industry.

The valuable nature of these products, obtained from the wild oil palm in West Africa, has led to trials being made elsewhere in the cultivation of the palms in properly kept plantations. Success has been already obtained on such plantations in Sumatra and Malaya, where the palm grows well, and it is probable that in the Eastern tropics the African oil palm will become a plantation crop of great importance.

An article on the African oil palm, dealing with all aspects of the subject, appears in the current number of the Bulletin of the Imperial Institute (London, John Murray, price 3s 6d). It is shown in this article that an oil-palm plantation may generally be expected to yield larger profits than those obtainable from cocoanuts

THE MARKETS.

Coffee.

Our cable this week quotes "A" coffee, on a quiet market, 114s. per cwt. At the time of resumption of our weekly cable in the beginning of October last the price was 122s. By the end of that month it had declined to 118s. and then 115s. in November. An increase of 1s., to 116s. carried us to 10th December, since when the price has remained unchanged at 115s. until this week. The tendency has thus been steadily, though not rapidly, downwards. It is interesting to see, in the periodical reports received, the presumed reasons for this continued quietness. The absence of new crop, of course, has a quietening influence always at this time of year, but the present situation is controlled more by the quality offered and by the continental exchanges. The export demand would appear to be confined to the better descriptions, which is understandable in view of the high price it is necessary to pay in France or Germany at the ruling rate of exchange. Consumers are not going to pay excessively for anything but the best. Early in December, it was reported that restrictions as between the port of Hamburg and the interior had been removed, and it was hoped that this would be a favourable point. Ordinarily, it would have a far reaching effect, but a simultaneous depreciation in exchange so militated against the export trade that the removal of the restrictions has had apparently no effect.

There were no public auctions in Xmas week, but the private market was firm. New crop Costa Ricas were scarce, and in the absence of advice of fresh shipments there was an increased demand for Mysores. Owing to a strike in Brazil, scarcely any shipments are being made.

London Coffee Returns.

	Home Consumption.		Export.		Stock.	
	1920. Tons.	1919. Tons.	1920. Tons.	1919. Tons.	1920. Tons.	1919. Tons.
For week ended December 11 ...	275	406	254	180	20,122	20,663
For 50 weeks ended December 11 ...	16,232	17,534	13,421	18,573	...	...

Locally, there is nothing fresh to report. The new rates of freight by Clan Line are as follows:—

London	... 90s.	By direct steamers less 10% rebate
Antwerp	... 95s.	
Marseilles	... 100s.	
Rotterdam	... 102/6s.	
Hamburg	... 115s.	

the old rate being 135s. for all contract ports. There is no change meanwhile as regards Havre.

Tea.

The price of tea should form an interesting study in the near future, in view of the restrictions now in force, both in crop production and in shipments from India. For some time past the tone of the London market has shown a considerable improvement, although reports still emphasize the difficulty of selling common and low-medium grades. Teas above 1/0 s. sell freely, but the trade seems indifferent to the lower qualities. No public auctions were held during Xmas week, but a fair amount of business was done privately, and it was generally conceded that there was every prospect of a strong demand in the New Year, when the market reopened on January 3rd.

OFFICIAL STATISTICS OF THE TEA TRADE OF THE UNITED KINGDOM.

	One Month ended November 30.		
Imports—	(1913) lbs.	(1919) lbs.	(1920) lbs.
India ...	35,120.982	36.720,834	24,044,484
Ceylon ...	6.498 111	13.265 435	9,813,403
China ...	1,470,775	2 418,527	1,239,348
Java Sumatra and other Dutch possessions ...	1.704.913	5,266.263	4,483,463
Other Countries ...	414 014	368,718	65,851
Total Imports ..	45 208,795	58,039,777	39,646,549
Home Consumption ...	27,056 067	30,303,767	31.532,471
Export ...	5 179,612	2,350,104	3.583,723
Total Deliveries...	32,235,679	32,653,871	35.116,194
Stock on November 30 ..	125,434.000	16,986,100	227,903,000

	Eleven Months ended November 30.		
Imports—	(1913) lbs.	(1919) lbs.	(1920) lbs.
India ...	173.653,181	245,554.507	231,018,795
Ceylon ...	103,401,699	125.913,555	120.668.318
China ...	14,947,293	23,076,996	14,981,543
Java Sumatra and other Dutch possessions ...	30.017.788	36,228 688	36,772 899
Other Countries ...	3,158,091	6,513 135	1,930,017
Total Imports...	324,178,052	437,286,881	405,371,572
Home Consumption ...	280,896,014	360.242 900	362.612,654
Export ...	53,126,723	27,206 719	38,551,150
Total Deliveries...	334,022,737	387,449,619	401,163,804

INDIAN PENINSULA RUBBER AND TEA ESTATES

FIRST ANNUAL ORDINARY GENERAL MEETING.

The first annual ordinary general meeting of the above company was held at the offices of the company, Mincing Lane House, Eastcheap, E.C. 3, on Wednesday, December 15th, 1920, at 12 noon, the chairman of the company (Mr. H. P. E. Drayton) presiding, the other directors present being Messrs. Herbert Wright and P. K. Read. Capt. E. G. Windle, the other director, is in India on the business of the company.

Mr. E. H. Dorn, representing the secretaries, having read the notice convening the meeting and the auditors' report.

The Chairman said: The report and accounts have been in your possession for the customary period, and I presume you will as usual permit me to take them as read. Before going into the accounts I should like to draw your attention to the sale of the Paralai Estate for £85,000, and certain other sums for valuation of crops, advances, stock, etc., not yet adjusted. We think we may take some credit for the sale which we were able to arrange which has relieved the company from the cost of carrying on such an expensive estate for the past and future years the result being we shall be spared a very large loss which would have inevitably resulted under existing circumstances with regard to tea had we to carry on that estate for the past and present years; this would have meant a loss for this year of probably 6d. a lb. or more on every lb. of tea produced, and we should have been bound to carry on our cultivation there so long as we could find funds for that purpose so as to preserve our labour. I may say we were very reluctant to sell that estate over which we as a Board have spent so many anxious hours, but when we realise how far the price of tea has fallen and how much money would have been required to carry on we feel that our action is fully justified. Some elaboration of the accounts is due to you, and I propose to give you a few details before dealing with the general position. Taking first the trading account, the item of £34,618 12s. 4d. for estate expenditure represents an expenditure in India of Rs. 346,186 taken into account at the average remittance rate of exchange for the period covered, *viz.*, 2s. per rupee. I shall have something to say on the question of exchange later on. This item of £34,618 12s. 4d. is sub-divided as follows:—Expenditure on Paralai Estate, £11,567 10s. 3d., and on the other estates £23,051 2s. 1d. The various items of estate expenditure were as follows:—

Management, superintendence and allowances ...	£ 3,906
Rent, taxes, medical and miscellaneous ...	1,696
Tea cultivation ...	2,712
Tea harvesting, manufacture and transport ...	4,235
Coffee cultivation ...	4,359
Coffee harvesting, preparation and transport ..	2,938
Rubber cultivation ...	3,781
Rubber harvesting, manufacture and transport ...	6,327
Upkeep of buildings ...	3,096
Interest on bank loan in India ...	213
Upkeep of grain lands ...	432
Coast agent's expenditure ...	844
Minor products ...	79
Total ...	£34,618

Before going any further I may say that this expenditure includes the few weeks which elapsed between the winding-up of the old company on May 20th, 1919, and the registration of the new company on June 16th, 1919. Directors' fees, including tax, stand at the low figure of £654 7s. 2d London administration is made up of secretarial fee and rent of offices and general office expenditure. On the credit side of the trading account are set out the amounts received on the sale of the various products, and the net prices per unit are given in the body of the report. Sundry receipts on the estates, £166 17s. 2d., are for the sale of sundry minor products. With reference to difference in exchange, as I have stated, the Eastern expenditure was taken into account at the average remittance rate of 2s. per rupee. We were, however; able to remit considerable amounts before the very heavy rise in the rupee took place, and consequently there is a credit of £797 17s. 2d. on this account. Had the pre-war rate of 1s. 4d. prevailed, the estate expenditure would have been reduced by about £11,000. Interest, £1,165 14s. 6d., is accrued interest on the sale price of Paralai Estate, less interest paid on loans. On the debit side of the profit and loss account we have preliminary expenses, £876 18s. 4d., being legal and registration expenses in connection with the reconstruction of the company. The debentures were paid off at 105 per cent. in accordance with the terms of issue as at October 31st, 1920. There will, therefore, only be four months' interest in the next accounts. Interest at 6 per cent. is payable on calls paid in advance, which accounts for the item of £73 16s. 7d. This brings us to the result of the year's working, a loss of £8,003 13s. 7d. I will first deal with the balance-sheet before referring to this. At June 30th the shares were 15s. 6d. paid, but on the following day, July 1st, a further call of 1s. 6d. per share was due, and the shares are now 17s. paid. It was originally our intention to make the two remaining calls of 1s. 6d. each payable on January 1st and July 1st next, but in view of the general financial stringency we have decided to defer these calls for a time. A considerable number of shareholders paid up the last call before the actual due date and others have paid up future calls in advance, hence the item £6,901 1s. 10d. in the balance-sheet. Loans, £16,287 16s. are an advance by the bank of £6,287 16s. or the security of the last call on the shares which has since been repaid, and a loan of £10,000 taken over from the old company, the terms which were exactly the same as those of the debenture issue, and which accordingly was also repaid at 105 per cent. on October 31st. Sunday creditors (£15,720) are as follows:—

	£
Drafts drawn upon us in India and in transit on June 30th...	9,150
Income tax on debenture and loan interest and on fees ...	1,620
Interest on loan ...	840
Freights and commercial agents ...	267
Legal expenses ...	297
Balance of purchase price of bungalow ...	650
Sundry liquidation expenditure ...	168
Outstanding accounts on estates ...	2,727

All these items have since been repaid. On the credit side of the balance-sheet you will notice that we have made two purchases since the reconstruction. With regard to the foodstuffs area purchased for £3 500 we were very fortunate in obtaining this area of excellent well-irrigated grain lands for such a low price I cannot do better than quote Capt. Windle, who made this purchase on our behalf. He says: "I think we have now put ourselves beyond the reach of grain famine in the future. The necessity of providing grain and the doing so at cheaper rate than our neighbours are good reasons for the purchase; but we have also got a very valuable property at a very cheap rate." With regard to the bungalow purchased for £725, this is a large modern building completely equipped with furniture situated on the outskirts of our principal coffee estate, the value of which is considerably enhanced thereby. This also is a very cheap purchase. Our property account has been reduced by the amount of the sale price of Paralai Estate, less certain items of expenditure still in suspense. The remaining estates now stand in the books at approximately £21 per planted acre without taking into consideration the value of the grain lands. Produce on hand, £9 512 10s. 7d., has mostly been brought into account at actual prices realised. The balance remaining unsold has been valued at 8d per lb. in the case of rubber and approximately 60s. per cwt. in the case of coffee, both of which figures we hope will be exceeded. With regard to sundry debtors and advances, £9,582 2s. 3d., the total advances stood at some £6.000, and the remainder consists of sundry debts owing to us in India and London, which have since been repaid. Amount received from sale of Paralai Estate and interest thereon I have already explained. Cash at bankers and in hand included £7,293 15s. 8d. in the bank and on the estates in India. You will see at the head of the balance-sheet a note to the effect that the rupee has been taken at an exchange of 1s. 9d. This only refers to the balance-sheet. The expenditure during the year was taken at the average rate of 2s., but on June 30th the rate of exchange was down to 1s. 9d., consequently all amounts owing by us and to us in India, including labour advances, had to be brought into account at the exchange of 1s. 9d. In order that you may the better understand the vagaries of the rupee exchange I will give you a few figures :—

Before the war a rupee cost us ...	1s.	4d.
On June 30th, 1919, a rupee cost us ...	1s.	8d.
On September 30th, 1919, the exchange was ...	1s.	10d.
On December 31st, 1919, the exchange was ...	2s.	4½d.
On January 31st, 1920, the exchange was ...	2s.	8d.
On March 31st, 1920, the exchange was ...	2s.	3d.
And on June 30th, 1920, the exchange was ...	1s.	9d.

The rate of exchange has still further receded since then, which is all to our benefit as far as remittances for the current year's working are concerned, but it seems rather unfortunate, on paper, that our financial year did not end on January 31st, in which case our Indian bank balances, labour advance and debtors would have appeared a much higher figure than is shown in these accounts. In the report we inform you that a large proportion of the loss of £8 003 was made on the working of Paralai Estate prior to its sale. Allowing a due proportion of London expenses, debenture and loan interest, etc., to each product the loss is approximately apportioned as follows:—Tea, *i.e.*, Paralai Estate, £5.000 loss, rubber £4,000 loss, and coffee about £1,000 profit. You will perhaps understand this result if I give you a few comparative figures of produce prices. A year ago to-day the price of rubber was 2s. 7½d. per lb. We realised a net figure of 1s. 9·68d. for the portion actually sold, but had to value some 37,000 lb. unsold at the low figure of 8d. per lb. net. Our own tea was selling a year ago at prices ranging from 1s. 7¾d. to 1s. 5¼d. per lb., but the majority of our tea came on the market after the disastrous fall in tea prices had taken place, and we realised only an average of 8·81d. per lb. all round. There is not the least doubt that, if we had not disposed of Paralai Estate and had continued to work it throughout the financial period a very much larger loss would have been made. The sale paice of our class of coffee a year ago was from 180s. to 190s. per cwt., but unfortunately a considerable drop in the price of coffee has also occurred, and we realised an average of only 101s. per cwt. On top of all this we had to work at a 2s. rupee. All these circumstances fully explain the loss on the years working. With regard to the present position we are more favourably situated to tide over the present crisis in the plantation industry than the majority of companies as far as funds are concerned. We have about £ 47,000 in hand at the present moment, £ 40,000 of which is invested in the 6½ per cent. Treasury Bills. Some of this will be required to keep the estates in fair order during the present very bad times, but it is the policy of your directors to invest the balance in the safest class of security that can be found consistent with a fair return of interest. For the present the money will remain in Treasury Bills, but we hope to get a better rate of interest without in any way endangering the capital sum. With the practical failure of the present season's coffee crop, which is general throughout the district where our estates are, and rubber at a price which would not bring us in as much as 1s. per lb., we cannot hope for anything but a very bad year and must do the best we can to get through with the smallest possible loss. We have recently had a consultation with several of the largest shareholders, who are well acquainted with the present position of the plantation industry, and they were quite in agreement with our policy, which is briefly as follows:—We intend to cut down expenditure to the lowest possible minimum and when the present labour contracts for tappers expire, at the end of next month, we shall seriously consider the question of entirely stopping the tapping of rubber for a time unless the price of rubber has very much improved before then. We are pushing ahead with the planting of a hybrid coffee of Arabian type, which grows quickly and is a heavy producer of a high-class coffee at two years from planting For this reason and also because it is necessary to keep the estates well weeded in order to prevent them from reverting to jungle. we cannot dispense with the whole of our labour, even temporarily, but Capt. Windle, who is now in India. has the situation well in hand and will run the estates at the lowest possible cost until times improve. He informs us that the coffee is in excellent condition, and everything possible is being done in the way of thinning out and lopping the interplanted rubber to give the coffee the best chance of success. We hope for a good crop for the 1921-22 season, but shall be better able to judge the position as far as coffee is concerned after the next blossoming period in the late spring of next year. In conclusion I may say that we have joined in with the Rubber Growers' Association scheme for the restriction of output, but it is probable that we shall restrict our output by much more than the 25 per cent. to which we have agreed. I now beg to propose the resolution : " That the report and accounts for the period ended June 30th, 1920, as presented be received and adopted." I will ask Mr. Herbert Wright to second this resolution, after which we shall be pleased to answer any questions, before putting the resolution to the meeting.

Mr. Herbert Wright said he rose to formally second the resolution which had been proposed by the chairman. He thought he might, while on his feet, give his views in connection with the policy to be adopted in the affairs of the company. In the first place, he imagined that most of the shareholders present were fully aware of the present serious position of the tea planting industry in India and Ceylon. They all know that both rubber and tea were being produced at a big loss. The rate of exchange was a very important matter for a company like theirs, which had to make remittances from month to month. The company, as they knew, now own five groups of estates, having sold one—Paralai. He had before him the accounts of the five groups, and also the average costs and expenditure for five years, and from a study of these accounts they would see that every effort had been made to curtail expenses on the various properties. The rubber crop, for instance, was 162 000 lb., which at 9d. per lb. would show £7,088. The coffee crop was estimated at 710 cwt., which at 80s. per cwt. gave £2 840—a total of £9,928. As against this the estates expenses amounted to £2,028 per month. Thus they would see that they were faced with a loss on working of something like £14,000 per annum. To reduce this loss and to save working expenses, they were trying every possible Practical scheme. They had Captain Windle in India at the present time, with the object of effecting a sale of one, or the whole, of their properties. In one of the latest letters they had had from him he mentioned that there were some good estates in the market, many more so than a year ago. Some of their own properties were very attractive to young men seeking the adoption of planting as a profession for their future career, and no effort was being spared to bring the advantages of their estate before persons of that class. They hoped for the best, although the outlook was not encouraging. If was suggested that the labour on a number of the estates should be reduced. Many of them were doubtless aware that many tea properties in India and Ceylon had been abandoned and had gone out of cultivation. They had already been able to effect considerable economies on the labour side. Captain Windle referred to the possibility of having to abandon tapping altogether; he agreed that every effort should be made to reduce labour and even to suspend it altogether in some cases. A substantial reduction in the labour force had been effected on two estates. In view of the financial position the directors had decided for the present to defer calling up the balance due on the shares. The cash they had in hand had been invested in securities of the highest class redeemable at an early date. No effort would be spared to reduce labour wherever possible and to keep the costs of management and maintenance down to the lowest level. They had decided to stop tapping on the rubber estates and reduce labour on others. He did not think they could afford to reduce the labour on the other properties. The directors would be pleased to give any further information on the reports and accounts before them.

Mr. Cable, a shareholder, congratulated the Board on their efforts in reducing expenditure and on the successful sale of the Paralai Estate and also thanked the chairman and Mr. Wright for the full information they had given to them that day. He congratulated the directors on their decision to keep the capital of the company quite liquid and on the decision not to call up the balance of the share capital for the time being or until the situation in the rubber industry was very much clearer. There were difficulties in the industry to-day, but an alteration for the better was bound to come, as every period of depression was always followed by a recovery.

Another shareholder suggested that the directors should use a portion of the profit made on the sale of the estate to make the shares fully paid, but Mr. Wright pointed out that there was no profit agreed.

(To be Continued)

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" Coffee.

(BY CABLE.)

LONDON, DATED 28TH JANUARY, 1921.

112s. per cwt. Market Quiet.

THE RUBBER POSITION

A letter from Mr. Eaton in this week's issue puts, concisely, a point of view of the Rubber position as far as Southern India is concerned, which may or may not be shared by the majority of rubber planters here. We hope that our readers will more readily take pen in hand than is their custom, and give us their views, particularly on this extremely important question of the semi-abandonment of Rubber Estates. It is an unfortunate fact that a good deal of what, at the time, proved to be talk of "shutting down" has materalised, to our own knowledge, in the actual cessation of work on a good many places. Superintendents have been given home leave, where not actually dismissed ; labour is not to be readvanced this year, and only the senior writer kept on to supervise a handful of coolies whose duty it will be to keep down diseases, clean up fire boundaries, care for buildings and machinery, etc. It is a drastic measure, occasioned, we understand, by a fact not ordinarily apparent and rather difficult to fathom from our position, outside the charmed circle in which are discussed and made known to a select few the actual prospects of the industry. Thus, as Mr. Eaton says, rubber, we see is again 1s. 2*d*., so only touched 9*d*. for the matter of a few days. Certainly, if we are to judge by Reuters cables. we were justified in saying, as we did in our Notes and News on 15th January, that with Rubber at 1s. 1½*d*. and exchange still hesitating at the 1s. 6*d*. limit the telegrams brought welcome news to Rubber Planters in S. India. Well we have only to-day, (we are writing a week before this appears in print), been informed of a cable from London quoting the price of Rubber at 9½*d.* and "prospects most discouraging." We can only boggle at attempting to reconcile the information from these two sources. If it is true that, in spite of Reuter's cables we can only average 9½*d.*, then Mr. Eaton's figures are not of much use. It brings us to 6*d.* f. o. b. (counting 3½*d.* freight and Home charges), which, at 14 rupees to the £ sterling is equivalent to 22 cents. Mr. Eaton's figures show 5 annas f. o. b., which is 31¼ cents. The net loss is thus 9¼ cents. The problem then is, how to save that 9¼ cents on expenditure. Can it not be done by restricting expenditure, as Mr. Eaton suggests, rather than by restricting tapping? Certainly, by throwing the whole Estate out of tapping, we arrive at a *small* expenditure it is true, but have no income. It should not be difficult, particularly as in most cases Estates have rubber of varying ages, to so arrange matters that the younger clearings may be left out of tapping. At the best they do not show individually much profit, and it is only by averaging out costs and crop returns that we arrive at a reason at all for tapping them. Why not then spend on them only such money as is required for keeping down diseases, clearing up fire boundaries, etc., *in fact exactly as we hear is being done over whole estates*, and keep the older rubber in bearing. The higher yield per acre, even at 9½d per lb, should give a return sufficient to pay for the supervision of the young clearings. Supervision charges would be less, weeding less, and so on, and the estate retains the undoubted benefit of keeping at least a fair proportion of its tapping force as a carry over till better times. All thought of *profit* must be put on one side, so long as expenses can just be covered. It was Dickens, was it not, who wrote—Income 20s., expenditure 20s. 6d. result—misery. Income 20s., expenditure 19s. 6d, result happiness. That should be the Rubber Planters' motto. To carry on at a loss is of course folly, but although no doubt the "All young" Estates will need the drastic measure by which they lose a little instead of a great deal, failure to work out the possibilities of "carrying on" in the manner indicated would be immeasurably silly.

Now, there is the question also of the Rubber Growers' Association proposals, and, although we shall remain at divergence with the views expressed by Mr. Eaton, that need not prevent a careful study of the matter by everyone concerned. Briefly, communications have been addressed to the Association advocating a more drastic policy of output reductions, and we see from our Malayan contemporaries that a Special Committee, formed to deal with the rubber crisis, recommend that restriction be increased to 50% of the output. To attain this end, although restriction by non-collection is thought more desirable, the impracticability of such methods has led to an appeal to Government to restrict output by the prohibition of export, except under permit, or by a prohibitive duty on rubber exported in excess of the restricted allowance. Let it not be understood that we are advocating this system. We deprecate entirely the control of any industry by Government, and that is what the idea if enforced would necessarily become. But, when it is a question of asking Government for financial aid in a crisis of this sort, it follows that such aid could only be granted on conditions laid down by the Government concerned. This brings us to the comic side of the crisis as pointed out by a correspondent to a Malayan daily, who remarks that hundreds of estates are busily competing and turning out rubber which is not wanted, and at a dead loss to themselves, and then seriously inviting Government to legislate to prevent them continuing the silly game. A truly pitiful spectacle. Small wonder then, that reasoned opinion in Malaya, in some cases, regrets that the Com mittee did not recommend a 75% reduction. This may seem drastic, but only drastic methods are effective, and if it is realised that a 50% reduction did not appreciably diminish stocks Government would be perfectly right in refusing to issue permits for more than 30 to 40% of the output.

We deal at some length with the position in Malaya, because the Rubber Growers' Association membership, we believe, is largely formed of Malaya Companies, and we shall no doubt be called upon here to agree to some such scheme as that outlined by the Malaya Committee if it is accepted by the R. G. A. In a leading article on the subject, "The Malayan Tin and Rubber Journal" says:—

> "The Committee appear to have given the position very careful consideration, and they, as a result, have presented a set of recommendations that, if thoroughly carried out, will go far to meet the situation. If for some reason or another they are not put into operation, the situation will become desperate, and we are, therefore, anxious as to the attitude of the R. G. A. The question as to whether the rubber industry is to brave the crisis or not rests with them. May they prove worthy of their great responsibilities."

It seems to be generally accepted that the 25% restriction already in force is not going to be sufficient to consume the surplus rubber, and restore the market to a normal condition. To increase the rate of consumption (of surplus stocks) is the problem immediately before the Rubber Growers' Association, and arising out of that is the necessity of formulating some scheme of co-operative selling, so that such a position as we are now in may never again arise. It is for us to help in attaining that desirable end by every means in our power, which is why we are in favour of increased restriction. We believe, it can be done, not with profit, but without heavy loss, and without the necessity of "shutting down" completely except, as we have said, in the case of the "All Young" estates, for whom some form of financial aid such as that outlined by the Malayan Committee would seem to be the only remedy.

DEPARTMENT OF AGRICULTURE, MADRAS.

Leaflet No. V of 1917.

A FEW HOME-MADE REMEDIES AGAINST SOME COMMON PLANT PESTS.

Frequent enquiries are received from different parts of the Presidency asking for simple control measures against some common insect pests, found in kitchen gardens, hot houses, flower and fruit gardens. It is, therefore, believed that the following few directions might be of some help in devising measures to control these troublesome pests.

The commonest of these pests are the following:—

(i) PLANT LICE —There are very few plants which are not infested by plant lice. These are small, soft-bodied insects commonly found in colonies on the tender portions of plants, such as shoots, tender foliage, buds, flowers, etc. They are sucking insects, and so pump the plant-sap from these tender portions. When a plant is badly infested the shoots and buds suffer badly; the leaves become curled up, the growth of the shoots is checked, and the affected parts gradually dry up and wither.

When closely examined, each louse will be found to be provided with three pairs of legs, a pair of feelers and a sucking tube below the head, In addition to these is a pair of small tube-like projections, one on each side of the posterior end of the body; these are called "honey tubes" because the insect throws out a sweet juice from these tubes, and ants are attracted in numbers on this account. Ants very rarely do damage to growing crops. When they are seen in numbers on plants, one can almost be sure they are in search of plant lice, or other similar insects infesting the plant. The great majority of the lice in a colony are wingless, and move about very slowly. The commonest example of a plant which suffers from plant lice attack is the Lab-lab vine; thousands of the lice are often found completely covering the tender vines, shoots and flowers. Cotton, Tobacco, Brinjal, Cabbage, Raddish, Agathi, etc., are other common plants often suffering from attacks of plant lice.

(ii) MEALY BUGS.—These are also sucking insects, like plant lice. and affect the plants in the same manner. But they differ in appearance. Mealy bugs are soft creatures, generally covered with a powdery white bloom; some are profusely covered with this stuff, while in others it is scanty, and in some others the white covering is arranged as long processes proceeding from the body of the insect. The name of the bugs is due to this covering. Mealy bugs also move very slowly, when they do so. A common example of a mealy bug is the white cottony insect that infests crotons, roses and other garden plants. Mealy bugs of different kinds infest different plants, such as Cotton, Brinjal, Mango, Sugarcane, Pine apple, Tomato, etc.

(iii) SCALE INSECTS.—Though in habits these are also sucking insects and injure the plant in the same way as the first two, in appearance they look like non-living things. Scale insects are all fixed to the plant during their adult condition, and most of them appear like scales attached to the plant surface. They infest shoots, branches, and even the main stem of plants. Fruit trees and industrial crops like coffee, tea, etc., suffer most from these insects. Well known examples of scale insects are the brown and green bug of coffee. Other familiar examples can be found on Guava, Nim, Babul, Mango and other common plants.

All these insects have the power of multiplying enormously and very rapidly, and hence they are capable of doing substantial damage if not checked in time. To check their injuries the following applications, which can be easily made by any one at home, are recommended.

KEROSENE EMULSION.—This is prepared as below. Dissolve one to one and a half pounds of any ordinary bar soap in a gallon of water, and while it is boiling remove from the fire and add two gallons of kerosene by slowly pouring it over the soap solution, and, while doing so, thoroughly agitate the whole with a syringe or pump until the whole becomes a white, creamy emulsion. This, when wanted for use, may be mixed with 50 gallons of cold water and then sprayed on plants attacked by sucking insects. The mixturemay be made strong or weak as necessary, by reducing or increasing the proportion of cold water. With hard water more soap should be used. This can be used against plant lice, mealy bugs, and all soft scale insects with good effect, by bringing up the solution to sixty or seventy gallons. In the case of hard scale and active bugs like leaf hoppers a stronger dose, 30—40 gallons, must be used. This preparation can also be used as a wash on cattle infested with vermin

TOBACCO DECOCTION.—This insecticide is made by boiling a pound of tobacco (the refuse stems and powder will do very well) in a gallon of water for half an hour, or by steeping it in cold water for a day. In the tobacco decoction, dissolve four ounces of any ordinary bar soap. This soap and tobacco mixture when cool is to be diluted with six or seven times of wate and sprayed on the infested plants. This will be found useful against plan lice and mealy bugs affecting those plants where we use the foliage instead of the fruit, or where the fruit or other edible portion is attacked, and where we would like to avoid the smell of kerosene. This is the case when the tobacco plant itself is attacked by plant lice, as is very often the case. Dry tobacco dust can also be applied to the soil around vegetables, to drive away pests of different kinds.

When infested leaf vegetables like cabbage, cauli-flower, etc., which may have to be cut soon for consumption have to be treated, the following simple but temporary insecticides might be used instead of using kerosene emulsion or tobacco decoction, which might leave traces of kerosene or tobacco smell, if at all.

SOAP SOLUTION.—A quarter of a pound of soft soap mixed with one gallon of water might be applied once a week, two or three times.

NAPHTHALENE.—For plant lice, powdered naphthalene mixed with ashes in the proportion of one to two may be applied dry. Th s must be used early in the morning, when the leaves might be wet with dew, or after a spraying with cold water so that the powder might stick. The advantage in using naphthalene is, that it is harmless, effective against insects and evaporates in 24 hours leaving no trace of its smell on the plants.

For some of the scale insects which possess hard scales and against which kerosene emulsion is not so effective, a preparation called ***rosin compound*** may by used. It is made as follows :—

Two pounds of rosin and a pound of washing soda are well powdered and boiled in a vessel with sufficient water to cover them ; the boiling should continue until both are well dissolved Add cold water little by little to the boiling mixture until the whole is brought to three gallons. Continue the boiling until the mixture becomes clear and thin, and having a deep brown colour. To this solution water is to be added in the proportion of one part of the compound to seven parts of water, and, if wanted strong, the proportion of water may be reduced a little. This substance, when sprayed on scale infested plants, covers the insect with a thin film of liquid which on drying forms a coat of varnish, and kills the insect by asphyxiating it.

There are also different ready-made preparations sold for use against sucking insects, which might be purchased in bulk when large quantities are needed. Crude oil emulsion and fish oil rosin soap are examples of these.

It must be borne in mind that very strong doses of these insecticides—especially that of kerosene emulsion—will burn the foliage, and make the remedy worse than the disease. As far as possible it will be found advisable to stick to the proportions indicated above, only making the mixtures slightly weaker in the case of soft insects, and somewhat stronger when the insects are hard scales.

It is always advisable to apply these insecticides early in the morning, before the heat of the sun begins to be felt. In the case of bad and persistent attacks the treatment should not stop with one dose, it should be continued three or four times, at intervals of a fortnight.

Before beginning the treatment it is better to remove and destroy all badly infested parts of the plant, or completely dead plants which are not only of any use, but will harbour the pests if not attended to properly.

The undersigned will be glad to give whatever additional information is required on these points, if applied to.

T. V. RAMAKRISHNA AYYAR,
Ag. Government Entomologist.

NOTE.—One gallon is a little over 2½ Madras measures.
The capacity of an ordinary kerosene tin is four gallons.
One pound is equal to 40 tolas roughly

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore,
22nd January, 1921.

SECRETARY'S REPORT NO. 4.

1. IMPERIAL SHIPPING COMMITTEE.—With further reference to Item 13 of Report No. 1, the Association has written to this Committee asking them to use their influence in pressing forward the early completion of the development of the Cochin Harbour.

2. AUXILIARY FORCE ACT, 1920.—A copy of this Act has been received, and a *resume* will be published in the "Planters' Chronicle." Major C. H. Brock (Nilgiri Malabar Battalion,) and Mr. A. S. Dandison (Southern Provinces Mounted Rifles,) have been nominated by the Executive Committee as members of the Advisory Committee constituted for the Nilgiris and West Coast area, under the Act.

3. EXPORT DUTY ON TEA.—With reference to Item 8 of Report No. 1, the Government of Madras have been asked to draw the attention of the Government of India to the increasing necessity for the removal of this duty and to urge its, early withdrawal, as requested in the Association's letter to the Government of Madras, dated 15th October last, which had been forwarded to the Government of India.

INDIAN RAILWAY COMMISSION (1920).—A long *questionnaire* was received from this Committee asking for views and recommendations of the Association, but it did not ask for any witness. The *questionnaire* dealt for the most part with Management, Finance and Government control. As the Association is not in a position to make any representation on these points, no answers to the questions have been submitted.

(Signed) C. H. BROCK,
Asst. Secretary.

THE RUBBER CRISIS IN MALAYA.

At a most representative meeting of the Planters' Association of Malaya, on December 29th last, the Hon. Mr. William Duncan, Chairman, put the following estimate of rubber stocks as at the end of December, 1920. Without claiming absolute accuracy, Mr. Duncan said the figures were carefully compiled in Singapore a few days previously, from information available, and are as follows:—

RUBBER STOCKS.

In America.—		Tons.
In New York, in the hands of manufacturers and in transit within the Continent ...		1,20,000
In London.—		
On 4th November, 42,000 tons, now ...		50,000
Afloat.—		
Less than normal owing to restricted output ...		40,000
In the East.—	Tons.	
Singapore.	25,000	
Colombo.	5,000	
Netherlands Indies.	15,000	
Estates.	35,000	
		80,000
On the Continent of Europe, Japan, Canada, Australia, South America, and Africa (say) ...		20,000
Total stocks ...		3,10,000

Stocks at the end of 1919, at a time when business was active, were estimated at 240,000 tons.

Under to-day's conditions of trade, the normal world's stock might be put at 175,000 tons.

We may assume then, that world stocks are 135,000 tons greater than they should be.

On the suggestion of the Chief Secretary to Government, a Committee was convened of representatives of the industry in Malaya, with the object of formulating and submitting to Government a concrete scheme for the alleviation of the present grave situation. This Committee framed the recommendations printed below, which were unanimously accepted by the meeting.

Special Committee's Recommendations.

1. That, in view of the necessity for immediate action, the most effective remedy for the present condition of affairs is to prevent, by legislation, rubber being put on the markat.

2. That, it is most desirable that other countries (Ceylon, Netherlands Indies, etc.) should take similar action, and that Government be requested to approach them on the subject, but that, without waiting for the result of this, legislation in Malaya is essential, and such legislation should be introduced as soon as possible, and be operative from January 1, 1921.

3. That, as the primary object of legislation is to reduce production as well as stocks, restriction of collection would be the most desirable method, but if this is considered impracticable, restriction should be effected by prohibition of export except under permit, or by prohibitive duty on rubber exported in excess of the restricted allowance.

4. That the restricted allowance for the period from January 1, 1921 to June 30, 1921 should be 50 per cent. of the actual production of the corresponding period in 1920. In cases where authentic figures are not obtainable, the allowance should be fixed by Boards to be established, or by District Officers, as the case may be, and should not exceed 80 lbs. per acre for the 6 months in question. Cases in which the above rules may apply unfairly should be dealt with by Boards, who should also have discretionary powers to deal with all abnormal cases.

5. That no exemption of small holdings should be made, for the following reasons:—

(*a*) The small holder is not an exporter, but sells to a dealer.

(*b*) It is essential to the success of the scheme that all rubber exported should be identified.

(*c*) Whether small holdings are or not included, some machinery for such identification is necessary, though it would be neither possible nor essential to avoid all leakage.

6. That the ports of Singapore and Penang should be left free for the import and export of local and foreign rubber, but that means should be found to include in the scheme of restriction rubber produced in these islands.

7. Financial assistance required for mature areas should be granted, conditionally on cessation of all production for six months from the date when the loan is granted.

8. That, financial assistance should be given, if possible, to immature areas of 2½ years, or over,

9. That the extent of financial aid given should not exceed $3 per acre per month.

10. That applications for help should for the present be considered by the Planters' Loan Board.

11. That with regard to Security the Committee hopes that, where a first charge is impossible, individual cases will be dealt with on their merits.

12. That no dividends should be declared until loans are repaid, and that 50 per cent of all nett profits should be applied to repayment.

13. That for the present, simple interest should be calculated half yearly at 7 per cent. per annum, and added to the loan.

To make the foregoing recommendations operative, legislation would have to be introduced in the Colony, and the Federated and non-Federated States.

Their adoption would, in the opinion of the Committee, affect other features of the present position, and it was unanimously agreed that the following opinions and additional recommendations (not requiring legislation) be submitted:—

(1) A reduction of output to 50 per cent. of 1920 crops would make it impossible for many Estates to employ as much labour as they now employ, and the result would be an increase in the number of labourers released.

(2) The Committee believe that Chinese labour is even now finding its way back to China in considerable numbers, and that this depletion of that class of labour will continue.

They, however, consider it likely that there will remain in this country for some months fair numbers of Chinese, who will find it difficult to procure work.

(3) Indian labourers are less independent than Chinese, and will to a greater extent look to their employers and to Government for employment.

Moreover, as Indians as a class are considered to be more suitable, generally, than Chinese as permanent workers on Estates, the Committee are of opinion that efforts should be made by employers and by Government to retain them here, and to provide them with employment.

(4) In view of the above opinions, the Committee urge that Government take action as soon as possible to provide relief works for a portion of the labour which is likely to be thrown out of employment.

Such works, in the opinion of the Committee, should include anti-malaria measures, the widening and putting into good repair of some of the existing roads, the making of new roads, extensions to railways, and the carrying out of any other required public works.

The Committee will take steps to appeal to employers to do what they can, within their financial power, to avoid discharging labour.

(5) The Committee believe that all classes of labourers in this country fully realize the gravity of the present situation, and that they would, be content to work temporarily at rates of wages which would provide them with the bare necessities of life.

In that belief they recommend that Government call upon all labour employing departments to reduce wages temporarily.

(6) The Committee are of opinion that a further reduction in the price of rice would tend to reduce the cost of living generally, and that any additional loss which Government would incur by doing so would be counterbalanced by lower wages payable and by a reduction in the price of contract labour, and of locally produced materials.

They therefore recommend a reduction in the price of rice as from January 1, 1921, and also the discontinuance of the rice allowance now granted to labourers and subordinate employees.

(7) The Committee believe that the Indian Immigration Committee have a large balance at credit of their fund, and recommend that payment of assessment due in respect of the 4th quarter of 1920 be waived, and also that payments due to employers as recruiting rebates for the same period be cancelled.

(8) The Committee recommend that, until such time as statistics are available from which a reliable forecast of the future of the rubber industry can be formed, no further areas of land should be alienated for rubber.

(9) The Committee recommend that for a time, and as a measure of financial relief, land rents be made payable and collected twice a year, on June 1, and December 1.

It was decided to call, through the medium of the press, a meetingof representatives of all planting Associations in this country, to be held at Kuala Lumpur on Wednesday, December 29, at 11·30 a.m, at which the Committee's recommendations would be submitted for approval and acceptance.

A Sub-Committee consisting of Messrs. Clodd, Sime, Lowther, Kemp, Gibbons and Duncan were appointed to take steps to have the recommendations of the Committee elaborated and presented to Government in the form of a concrete scheme.

AMERICA COMPLAINS OF ROTTEN TEA CHESTS.

NOT MADE WITHIN THE EMPIRE.

Ceylon tea planters have been digesting "a very bitter complaint" (their own words) from the J. C. Whitney Company in Chicago, concerning the present extremely high costs on tea in London, and the poor results obtained in spite of these heavy charges. "Unless," they write, "something can be done with the estate owners to force them to use better wood for their tea chests, or to strengthen their packages in some way...... We simply cannot go on buying London teas packed in such very poor shape... ... We certainly have the right to refuse to buy any tea which is so badly packed that the steamship companies absolutely refuse clean bills of lading to cover the shipments."

How often have we urged planters not to use rough-sawn boxes, with sawdust knocking around, for rubber packing, and enquired whether it did not pay in the end, even if it does not always seem the cheapest at the beginning, to have strongly made, metal bound tea chests, that do not tend to vanish into thin air if send to Australia, or to be fit only for firewood if sent to America.

These Japanese and foreign wood chests have had their day. The war and lack of transport no doubt resuscitated the demand for them, but now things have settled down tea planters will be wise to get back to their British-made chests again. Probably they are already doing so, for we saw the other day that Russia was sending larger quantities of tea chests to China, and Japan less. Probably the Russian chests are made by British firms, for Messrs. Venesta told us quite recently that the production of their well-known chests begins to improve, so that this year they hope to deliver about 800.000. Although this is probably but 50 per cent of what they supplied in 1915, it shows a satisfactory increase over more recent years, all things considered. If the costs are still high compared with native-made boxes, or even with the Japanese momi chests, the ultimate saving in such complaints and claims as those from Chicago, as well as in freight and warehouse charges, which are now so very much higher than before the war, makes the future use of the improved chests far more likely to increase as time goes on, and the complaints and loss over using other makes are shown up in sharper relief and so become more and more apparent.

"The J. C. Whitney Company ought to be complimented for having drawn attention to the scandal of sending tea on such a long journey in unseaworthy receptacles," said another firm; whilst our friends Luralda, Ltd., have no sympathy for Ceylon and her planters, some of whom, it seems, have been great sinners in this matter of paying too little attention to the poor chances of the tea chests used ever reaching the end of their journeys in a satisfactory condition.

And so, out of trouble will come good, especially to Ceylon we are sure, for the Ceylon tea planter was ever a wise man.

WILL $3 RUBBER COME AGAIN?

The long-impending restriction in rubber production by the owners of the great plantations of the Far East is an accomplished fact. the proprietors of fully 80 per cent. of the 3,000,000 planted acreage having accepted the recommendation of the council of the Rubber Growers' Association, of London, to curtail by 25 per cent. the estimated normal monthly output, either by leaving untouched one-quarter of the tapping area or by tapping the trees in the entire tapping area only on alternate days. Planters are free to choose either method to limit the total output. The "Covenant of the League" provides that the repression period shall extend from November 1, 1920, to January 1, 1922; but the time and terms of the restriction may be modified by mutual agreement whenever improved economic conditions, such as a considerable reduction in excess stocks, warrant such action.

Rubber planters feel amply justified in taking this course, toward stabilizing the market for raw gum, which has been severely jolted by a combination of adverse conditions, among them being drastic credit regulations by leading banking institutions of the world to check inflation, labour troubles, demoralization of European trade and the chaotic condition of the world's exchanges. All this came instead of the predicted post-war boom in rubber, and to mock the predictions of the too optimistic. Yet even the most conservative planters never dreamed of the price dropping to 10 pence (normal exchange), as it did recently in the London market, and which figure, while not below cost of production, does not show much profit.

Naturally, says "The India Rubber World" (New York) students of the rubber industry cannot help but speculate on the probable outcome of the decision of the plantation owners to curtail their output. Will not history repeat itself in this case, as it has in so many others? Very likely a diminished production of crude rubber will raise the price before long, in accord with the workings of the law of supply and demand, but at best this benefit can only be temporary. Attracted by the enhancing prices, and willing to take a chance where the profits are promising, enterprising capitalists are likely to go heavily into raising rubber, and there is still a vast available territory to be exploited. Hence, with much crude gum pressing for sale, the inevitable will happen, just as it did following the excessive production on the advent of the tire industry, and prices will drop sharply.

Rubber may some day again approximate the $3 mark ; but concerted curbing of production will not bring it about, nor will artificial restriction of sales do it, as the woeful collapse of famous rubber "corners" has well proved. Nor is another sudden and extraordinary demand for rubber, with swift price enhancement, such as came with the inception of the tire industry, at present in sight. Wherein then lies the planter's opportunity to get higher prices, with a ready market ? He may reach such a goal by producing a type of rubber better than that of his competitors, always homogeneous and up to sample ; by accepting the low prices, but producing a good grade of gum at reduced cost with improved methods ; or by finding some wholly new use for rubber on a considerable and increasing scale.

TEA MARKETS.

COFFEE.—A further decline in values has taken place, and our cable this week quotes 112s. per cwt. on a quiet market. At the end of December it was hoped that the New Year would see some improvement. There was a better enquiry than usual so near the end of the year ; business was done in East Indians at firm rates and, altogether, higher prices were expected for really fine liquoring parcels. This optimism does not seem to have been justified, and weekly it has been reported that the market continues very slow. There is some confliction in reports from various sources, although all are agreed that improvement in export demand is unlikely. The statistical position is still good :—

LONDON COFFEE RETURNS.

	Home Consumption.		Export.		Stock.	
	1920. Tons.	1919. Tons.	1920. Tons.	1919. Tons.	1920. Tons.	1919. Tons.
For week ended December 31 ...	236	272	208	257	18 866	19,869
For the year ...	16,945	18,143	14,209	19,268	...	...

Locally we are informed that there is no demand at all, and owners of coffee seem to prefer to send to London than to accept Rs. 47 per cwt. or less.

TEA.—Auctions were resumed after the holidays, when 47,621 packages Indian Tea and about 29,000 packages Ceylon Tea were offered. The market re-opened with a strong demand for all kinds, and generally higher prices were obtained. The market was especially good for Ceylon teas, and the opinion is expressed that with restricted offerings and smaller shipments there will be a general recovery in prices as the year advances.

RUBBER.—In the Planters' Chronicle of January 22nd. 1921, the opinion is expressed by a City man that one of the special factors affecting the price of rubber is trade and labour difficulties among Rubber manufacturers in the U. S. A. This point of view is held by most authorities at home, and we therefore had some reason to expect notice to be taken of it in America. The *India Rubber World* (New York) for January 1921, to hand this week, has something to say regarding the proposed restrictions and, as the 'article in question may be looked upon as the manufacturer's point of view as opposed to that of the planters,' we reproduce it elsewhere. It will be seen that the reasons given for the severe jolt which the rubber market has received include credit regulations, labour troubles, demoralization of European trade and the chaotic condition of the World's Exchanges. There is no mention of over production of rubber goods in America leading to short time and labour troubles there. In the same journal, in another place, this fact, however, is tacitly admitted in the following paragraph regarding statistics of tyre production.

> "One question which profoundly concerns all tire manufacturers, and urgently seeks solution, is how may the industry fairly determine what is over production, and how shall it settle with reasonable certainty what is under consumption."

The article goes on to ask is it possible for the leaders to act in concert and stabilize the industry, so that tire making may automatically adapt itself to the ever-varying conditions of supply and demand. The Tire Manufacturer's Division of the Rubber Association of America is collecting data from its members, which it says will be of vital benefit to every tire manufacturing concern in estimating how the demand for tires already made and unsold will be taken care of, and will go a long way in guiding it toward normal production of tires at any time. The warning issued that an enhancement of price may lead to further raising of Rubber on a large scale by enterprising capitalists is worthy of close attention, and fits in with what we have thought and said previously in these pages. We must disagree, however, with our contemporary in the contention that the planter's opportunity lies in producing a type of rubber better than his competitors, always homogenous and up to sample; by accepting the low price but producing a good grade of gum at reduced cost, and so on.

It is easy for the Editor in New York from his arm chair to dictate to men on the spot, and we can only express surprise that such an authority as this has not yet realized the actual conditions of the industry in the East.

> "Meanwhile "Macson" in the "India Rubber Journal" writes (January 8th) :—Prices have gone ahead famously this week. The Rubber Growers' Association have agreed to 50% restricted tapping, and cabled to the Malay Government asking for support in every way. This action looked sufficiently hopeful to tempt supporting money into our market, and undoubtedly very strong hands have got hold of things.
>
> "Meantime we await the result of the Good Year Company stockholders' meeting to authorise issuing fifty million bonds. This meeting was adjourned for a fortnight on December 24th. The market also awaits a promised statement from the Dunlop Rubber Company.
>
> "The rubber outlook generally is unfortunately not showing signs of improvement, but it must be heartening to all to see values of the raw article improve. The large stocks on all hands start the New Year with a fifty per cent. increase in value."
>
> "Singapore is grumbling about the financial outlook, but is sure, with its large Chinese element, to jump at a chance of bull movement. New York is still too sore to take much notice."

At about the same time as the publication of the above report, Messrs. Leslie & Anderson wrote :—

> "Our stock in London has again risen by over 1,000 tons during the last week. The rise in prices of all positions which has taken place in the last three days we attribute entirely to the news that a serious attempt is, at last, being made to restrict output sufficiently to influence prices. Prices have been fluctuating very quickly. The value of off grades have not yet improved to the same extent as standards, and there has, as yet, been no signs of a general demand from manufacturers.

> "P.S.—Since closing our letter we can give you this afternoon's latest market news of rubber. The view of the position of the market generally held is that, if the scheme of restrictions of exports from the Malay States is carried through, prices must eventually advance, but unless India and Ceylon and all Foreign Countries (the latter being doubtful) agree to the scheme, supplies will continue fully equal to the present world's demand. Most of us think the rise in this market has been far too quick, and we are sure to see a reaction, hence our decision to take advantage of the present rise, which we consider is chiefly due to the speculative position. Shorts are rushing in to cover their bear sales. The trade is not following this sudden advance, which is evident, for we cannot sell our balances of off grades of previous consignments within 3d. per lb. of to-day's price for Standard Sheet."

This explains much that has been mystifying us during the past month.

FREIGHTS.—A further reduction in freight is announced. After the departure of the "Clan Stuart" (about 8th February) the following direct rates will apply from the coast until further notice.

		s.	d.	
FOR COFFEE—	London	80	0	per ton, Coast scale, less 10% Rebate.
	Marseilles	80	0	
	Antwerp	80	0	
	Rotterdam	87	6	
	Hamburg	95	0	
	Havre	100	0	

TEA and RUBBER 7s. 6d. extra, and OIL 15s. extra.

NOTES AND NEWS.

Restriction of Output of Rubber.

Since writing our Leading Article, we have received the following communication from the Rubber Growers' Association, dated 3rd January 1921:—

> "The Council of the Rubber Growers' Association have cabled supporting a request made by Rubber Growers in Malaya to the local authorities for legislation to restrict production of Rubber to 50%."

Home Imports and Stocks.

The following figures published in the London Press, may interest our readers:—

Duties collected on Imports in England:—

	1919.	1920.
	£	£
Tea	17,449,378	18,310,680
Cocoa	3,024,831	2,399,201
Coffee	650,067	597,940

Stocks in bonded warehouses in the U. K. on 31st December, 1920.

		Pre war. 31—xii—1913.	31—xii—1920.
Cocoa	cwts.	198,000	1,030,000
Coffee	cwts.	251,000	657,000
Tea	lbs.	138,005,000	220,433,000

Ceylon Tea.

The following are the quantities of Ceylon Tea exported by rail *via* Talaimannar to the following stations in South India:—

	lbs.
Cannanore	7,243
Ayyampet	2,270
Adirampatnam	150
Tinnevelly	3,042
Total ...	12,705

These figures are taken from the Ceylon Chamber of Commerce Weekly Price Current, dated 10th and 17th January.

Mr. Anstead.

We were glad to hear again from our old colleague, who very kindly furnished us with the figures given above of Imports and Stocks. The time is fast approaching when we may expect his return.

The Executive Committee.

Notices have gone out calling an Executive Committee Meeting of the U.P.A.S.I. at Coimbatore, on Monday, February 14th, 1921, when, among other important subjects, the question of recruiting in new areas will be decided upon.

The Planters' Benevolent Fund.

The new rules of the Benevolent Fund have now been published, and we heartily endorse the appeal issued by the Secretary. Claims on the Fund have been particularly heavy this year, and it needs the unstinted support of all members of the Community if it is to carry on the good work.

Inter-District Sports.

We were interested to see the report in the Madras papers of the meet between the Malabar Club and Wynaad. With so many well known planters taking part, it is a pity we were not furnished, also, with an account of the visit to Calicut.

TheTennis Tournament.

The proposed Inter-District Tennis Tournament will be discussed by the Executive Committee, U. P. A. S. I., at their meeting on the 14th inst. So far we have received only one entry, that of the U. P. A. S. I. team, but at the time of writting, just as we go to press, it is hardly to be expected that District Associations can have had time to consider the matter. We hope, however, in our next issue to be able to announce further entries.

LETTERS TO THE EDITOR.

[*The Planters' Chronicle is not responsible for the opinions of its Correspondents.*]

Rubber Restrictions.

Dear Sir,—Rubber, I see, is again at 1s. 2d. So, it only depreciated to 9d. for the matter of a few days. At 1s. and exchange at 1s. 6d., we are getting 11 annas per lb., and most South Indian Companies can put rubber on the market at this figure, so are losing little or nothing.

I see a letter from the Secretary, Rubber Growers' Association, London, in this week's *Planters' Chronicle*, in which he brings up the question of *increased* restriction. Should this come about, I think South India should refuse to come in even if she is asked, which it is probable she won't be. It is rather amusing to read the three suggestions for accelerating crop reduction.

No. 1. "Alternate tapping" is already carried out on some South Indian Estates.

No. 2. "Cessation of tapping for one, two or three months" is carried out on every South Indian Estate, *always* two, and generally three months.

No. 3. "Abolition of tapping on Sundays and other holidays!" We know to our cost what this is in South India. There are a wealth of festivals and tappers *Abo—lish* themselves without and, I am sorry to say, sometimes ***against*** our instructions.

It is amusing, in so far as we are doing one or all of these things, and yet are reducing 25% on our balance—if we were doing any good it would be a different matter, but I have given figures to prove we are ***not***, and no one has either disputed those figures or, what is more to the point, given figures to prove the contrary.

"Shutting down" estates seems to me a short-sighted policy. No one is going to *abandon* their estates, so they have got to keep a Superintendent, a writer, and a certain amount of labour to weed and attend to disease work, and all these standing charges will be a dead loss if tapping is stopped.

It seems to me a better system to restrict expenditure, but to carry on tapping (I do not refer to the 2 months non-tapping period) because the only *extra* charges for tapping are tappers' wages, curing, packing, transport and home charges, and, even if one is only getting a very low out-turn of dry rubber per cooly, the costs work out approximately as follows:—

Tapping, curing, packing, transpost to F. O. B. ...	4 As. per lb.
Extra writers required	1 ,, ,, ,,
Freight, home charges, etc.	3 ,, ,, ,,
	8 As. per lb.

These figures are for an estate giving, say, 225 lbs per acre, and I do not think will be seriously quarrelled with. 8 annas equals 9d. with exchange at 1s. 6d, and, so long as we are getting this figure or above it, it surely pays us to keep supervising staff and labour contented; not only contented, but in existence. Companies who decide to do the other thing will probably lose more money, both actually and potentially.

Yours faithfully,
(Signed) S. P. EATON.

Foxy Coffee.

Dear Sir,—I have recently been informed that my coffee this year would be a beautiful sample, if it were not ruined by being "Foxy."

Why brokers should object to foxy coffee is beyond the comprehension of the ordinary coffee planter, I believe, but, as the fact of coffee being foxy lowers its selling value, we must try to keep the bean free from the ruddy tinge. I have always understood that, if I pick my coffee on the green side, I spoil my sample, so I pick the stuff when it is ripe, and do not allow the cooly to pick half-ripe berries. I pulp the crop the same day as it is picked, and wash it thirty-six hours afterwards. Yet my first sample is ruined. The unseasonable rains we have had this year will probably have to bear the blame for a great deal of foxy coffee, and not without good reason I think, but the coffee referred to above was picked before the January rains. One cannot get round a big estate in a few days, especially when crop ripens up as quickly as it has done this year, so coffee is bound to get ripe some time before it can be picked. This being the case, can any of your readers give me any advice as to how I can prevent my coffee going foxy, or will the scientific officer kindly give us his views on the subject, and so help to prevent our coffee going

"FOXY."

Land Grants.

Dear Sir,—Para 3 of the U. P. A. S. I. Secretary's Report, which appeared on page 41 of the "P. C." of the 15th instant, gives a brief statement of what has been done by the Association in regard to Grants of Land for Demobilised Planter Soldiers by the Government of India.

It cannot be said that we are pushing the matter very vigorously; and, from a recent letter I have seen from Colonel Sir Charles Yate, M. P., it would appear the Government of India has given the Secretary of State to understand that there is no genuine demand for grants of land in India from Ex-Officers of the Indian Army.

I do not think the Government of India has appreciated the situation accurately; but I do think Ex-service men have been singularly voiceless and apathetic in the matter. If we are to get a hearing we should, as a preliminary, take the opportunity offered by the Secretary, and send in definite applications to our respective Associations. The Secretary might then call a meeting of applicants, and try and fix on some workable scheme with which to approach the Government.

If it is not trespassing too far on your valuable space, may I observe that, in the nature of things, the number of applications for grants of lands in India from ex-officers will be very disproportionate to the actual number of ex-officers. Officers for the Indian Army were drawn from every Service, Trade and Profession in India, and although a Broker, Banker, Solicitor or Marine Engineer would probably, in a facetious mood, take 100 acres in, say, the back woods of the Anamalais, if it could be had for the asking, he is hardly likely to chuck his job for it; and, of what use would it be to him otherwise?

The only classes to whom grants of land would be welcome are, Planters, Zamindars, and perhaps a few men who would like to join the ranks of the above. To these, Government would probably reply "you have been paid a gratuity on the same terms as other officers, and to enhance this by a grant of land will cause dissatisfaction in the ranks of these, equally or more worthy, to whom land would be of no use."

I suggest this difficulty would disappear if genuine applicants would offer to refund the gratuity they have received from Government in exchange for lands of equal value to be held free of all rates, cess or taxes during the life of the grantee. Permission should be given to sell such lands, but the purchaser should pay the ordinary assessment. The value of the land allotted should be calculated at the lowest rates possible, and applicants should be allowed to choose their own plots within reasonable limits.

I admit this scheme is very imperfect, chiefly because it would mean handing the Government of India a gratuity we received from the Home Government; but where European interests are concerned the Government of India are notoriously hard bargainers, and I am afraid we will have to concede something, if we really want lands.

Yours faithfully,

(Signed) C. ST. JOHN IVES.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" Coffee

(BY CABLE.)

LONDON, DATED 4TH FEBRUARY, 1921.

115s. per cwt. Market Quiet.

THE COMING RUBBER EXHIBITION.

To give it its full title, the Fifth International Rubber, Other Tropica Products, and Allied Industries Exhibition, 1921, takes place in London from 3rd to 17th June, 1921. There is no need for us to give our views here of the utility or otherwise of these exhibitions. At the last Annual Meeting of the U. P. A. S. I., a resolution was passed instructing the Secretary to inform the Rubber Growers' Association that the Association does not consider it necessary to contribute financially to the Rubber Exhibition. This seems to reflect fairly the attitude of the S. Indian Planter. Whether the Directors of Sterling Companies at home think differently, is a matter of conjecture, but we notice, in the circular issued by the R. G. A,, there is mention made of the Ceylon and Malayan Exhibits, though not of any such contribution from Southern India.

The Rubber Growers' Association has given its support to the Exhibition, which is the first since 1914, although the fifth of its kind. This support manifests itself in various ways, first among which we place the idea of companies' contributing rubber for certain public purposes, and thus benefiting charitable institutions, and at the same time creating useful propaganda for the Industry. The idea is all right, but it appears to us off hand to be one which might better have been elaborated by the rubber manufacturers rather than that the poor producer should, in these hard times, be asked to fork out a few thousand pounds of hard rubber, for however worthy a purpose. However, in 1914, the appeal met with a liberal response (under the conditions then ruling), and the R. G. A. was able to arrange for rubber flooring to be presented to Guy's Hospital, "Stephen Ward," the Edinburgh Royal Infirmary, St. Michael's Church, Cornhill, and the Hospital for sick children, Great Ormond Street. Special arrangement were made with manufacturers to prepare the flooring, etc., from rubber contributed *and to receive payment in such rubber* for their work. The italics are ours, and are used to point a hint to the R. G. A. They might very well suggest that, if the poor planters put up 50,000 lbs. of rubber this year, as was done in 1914, the manufacturers, in that splendid spirit of imperial co-operation we read so much about, might equally share in the encomiums which will naturally ensue, by making and laying the flooring free of charge.

Coming now to the exhibits, we are afraid the producer's end is not going to be a very brilliant one from the Rubber Growers' Association point of view. The Ceylon Government, it is true, have promised a grant equivalent to amounts collected by private subscription, with a maximum of Rs. 25,000. *The Ceylon Chamber of Commerce* issued an appeal to local proprietors, and are said to have received support from Estates representing 56,000 acres. So far as Companies domiciled in the U. K. are concerned, an appeal is being issued by the Ceylon Association in London for subscriptions on the basis of 10 cents per acre planted with rubber. We await with some interest the result of this appeal, which we are afraid has got an uphill fight before it under present circumstances.

The Malaya Exhibit is still a doubtful starter. In 1914, the local Government organised the Exhibit, and made a financial grant conditional on a similar amount being raised by private subscription. Further information is being awaited as to the action of the local Government and Associations this year, but, from what we have seen in the Malayan press of the condition of the industry in the F.M S., there is little likelihood of support in 1921 on the scale of 1914. Frankly, supporting these exhibitions financially is rather like having to swallow the copy book maxims of our youth. We know that indirectly they do much to make better known an infant industry, but the plantation industry is no longer so young as all that, and if new uses for rubber are to be popularised it is for the manufacturer to exhibit samples of the finished article. He, after all, is due to benefit more largely than the producer since, admitting the possibility of an enormous increase in the use of rubber as the result of some such exhibition as this, the demand will be controlled by the ability of the manufacturer to produce the article, and not by the producer's ability to deliver the raw material.

Mention of the raw material reminds us of the Rubber Growers' Associations' awards for competition at this Exhibition, details of which we give below :—

COMPETITION NO. 1.

For the best commercial sample of Plantation Rubber taken from a consignment of not less than 50 cases. The consignment to contain three grades, as follows :—

1. 75% No. 1 Sheet and/or Crepe.

2.} 25% {Brown Crepe.
3.} {Scrap Crepe.

The above would be the usual assortment of an Estate, and marks would be equally divided between the three grades.

No. 2 should consist of a Clean Light Brown Crepe, usually made from cup washings, lumps, and anything not good enough to go into No. 1.

No. 3 should consist of light or dark brown scrap Crepe.

The above three grades (No. 1 Crepe and Sheet count as one) must of necessity be produced by every Estate, as the object is to get a representative consignment of all three qualities.

Condition and general packing will be taken into consideration in awarding the prizes.

The awards are offered in respect of rubber produced in Malaya, Ceylon, Netherlands, Indies, South India and Burma, and Borneo. Separate prizes are offered for each country, *viz* :—

1st Award—Gold Medal and Cup or Prize.

2nd „ Silver Medal and cash prize of £15.

3rd „ Bronze Medal and cash prize of £10.

Additional prizes will be awarded according to the number of entries.

Mr. C. E. S. Baxendale has kindly offered a prize for what, in the opinion of the Judges, is considered to be the best sample of Scrap Rubber entered in the Malaya Section of Competition No 1. The prize will be awarded to the Factory Superintendent, or other person actually responsible for the preparation of the Scrap Rubber. The decision of the Judges to be final.

Medals and diplomas will be awarded to the Owner of the Estate on which the rubber is produced, the Cups and Cash Prizes being awarded to the Manager or person in charge of the Estate at the time the consignment was made.

The conditions attached to this competition, and to those others for which the Rubber Growers' Association offers prizes, may be obtained on application to the Secretary of the South Indian Branch,

MUNDAKAYAM PLANTERS' ASSOCIATION.

MINUTES OF THE ANNUAL GENERAL MEETING, HELD AT THE MUNDAKAYAM CLUB, ON SATURDAY, 22ND JANUARY, 1921, AT 10 A.M.

PRESENT.—Messrs. T. W. H. Fitchett (Chairman), G. A. Brooke, A. B. R. Dickson, H. B. McPherson, J. R. Vincent, Keene, G. H. Danvers, Davy, B. M. Saywell, H. R. Carson Parker. F. G. Miller, A. V. Mauer, C. L. McLean, W. Lynden, and F. H. Moulton, Honorary Secretary.

MINUTES.--The Honorary Secretary read the notice convening the Meeting, and the Minutes of the Quarterly General Meeting, held on 17th July, 1920, which were adopted.

2. REPORT OF THE COMMITTEE OF THE M. P. A.—The Honorary Secretary read the Minutes of the Committee Meeting, held on 29th December, 1920, and it was proposed by Mr. G H. D. Davy, and seconded by Mr. J. R. Vincent that they be adopted. Carried.

3. CHAIRMAN'S ADDRESS.—Gentlemen,—As it has fallen on me, owing to Mr. Murphy having left the district, to preside at this the Annual General Meeting, I will endeavour to address a few words to you, which I think is usual from the Chairman. Since the last Annual General Meeting, conditions the world over have undergone a great change, which is the natural aftermath of the Great War. These conditions have been reflected in the markets, and especially those of the Rubber and Tea industries. Prices of our produce have steadily gone down until we are now faced with, in a great number of cases, having to carry on at a loss. With large stocks on hand at home things look very gloomy for us, and the prospects are that we are in for a struggle to keep our end up for some time to come. We must exercise stern economy, and we can then weather the storm. Gentlemen, I hope that you will not think me too pessimistic, but we have all got to face a very difficult situation.

RESTRICTION.—Although we have never managed, like our more fortunate neighbours in the Straits, to secure large crops, we have all combined to do our best as regards restriction, and I do not think that anyone can point to Mundakayam as a district which has not done its bit in this way

EXCHANGE.—This, gentlemen, is a subject which I do not profess to know much about, but what makes me think a lot is the close relationship with which the price of rubber fluctuates with the current exchange. It rather gives one food for thought.

RUBBER MYCOLOGIST.—As you probably know, the services of a Mycologist have been secured, and the prospects are, that a Mr. Ashplant will be appointed to the Mundakayam Mycological Station during the next two months. As this gentleman has already had considerable experience in connection with diseases of rubber, he will be in a position to at once tackle the problem presented by the numerous diseases peculiar to our districts.

RICE.—For a considerable time we have suffered heavy losses in providing food for our labour, and it has contributed to our already high cost of production. We have now the welcome advice that the cost of the new season's supplies will be much reduced. This will be of some small help to us.

U. P. A. S. I.—As you have all been posted as to the work of the parent Association, I will not touch on this subject, as your delegates to the last meeting of the General Committee have their report to present at this meeting. I would, however, like to thank Mr. Vincent for the work which he has done, and for the able way in which he has represented our views at the meetings of the General Committee, U. P. A. S. I. Gentlemen, I will not detain you any longer, as we have a fairly long agenda to work through, but before I tender my resignation, I would like to express my thanks to Mr. Vincent and Mr. Moulton for the way in which they have helped me since I was suddenly asked to take up the office of chairman.

I now place my resignation on the table.

4. SECRETARY'S REPORT.—Mr. Chairman and Gentlemen:—The following is my report on the working of the Association for the year ending 31st December, 1920.

MEMBERS AND ACREAGE.—The number of members of the Association is the same as in 1919, and the acreage has increased by 149 acres.

We have now on our books 11,703 acres of Rubber, and 1,115 acres of Tea, making a total subscribing acreage of 12,818.

CROPS.—As four estates have failed to forward returns as requested, I am unfortunately unable to give you the total figures for the district, or give the highest yield of any estate. Of the returns sent in, however, so far as I can judge, the yield of 241 lbs. of dry rubber per acre seems to top the list.

ACCOUNTS.—We commenced the year with a surplus of Rs. 696-7-9, and ended with a surplus of Rs. 1,369-8-6, showing an excess of income over expenditure for the year of Rs. 673-0-9. The accounts on the table before you show a larger amount, but owing to an oversight on my part the sum on Memorial Tablet a/c was not wiped off before the close of the year. The accounts have very kindly been audited by Mr. McLean, to whom we owe our thanks.

MEETINGS.—During the year we held one Extraordinary General Meeting, two General Meetings, and six Committee Meetings—all of which were well attended.

MEMORIAL TABLET.—A memorial tablet to those who fell in the Great War has been obtained, and is now awaiting erection in Peermade Church.

SRI MULAM.—Mr. J. R. Vincent very ably represented the Association again at the Popular Assembly, and brought up the question of roads, with the result that the sum of Rs 10,700 has been sanctioned for repairing the worst portions of the Rani Manimala Road. An estimate has been prepared for constructing a cart road from Cheruvally to Vellanadi, and now awaits the inspection of the Chief Engineer, who has to decide between two alternative routes. The Teekoy-Erratupetta Road repairs have been sanctioned to the extent of Rs. 10,000, but no funds have been granted for the present year.

COOLY CHATHRAM—The expenses in connection with the cooly chathram amounted to Rs. 186·6·0 for the year, of which the C. T. P. A. have paid their half share. It is interesting to note that, out of 962 coolies using the chathram since a record has been kept, 848 are from the Peermade district, and 114 from Mundakayam. With the expense of providing oil for the chathram lamp and the increased pay of the Watcher, the yearly expenses will amount to Rs. 204, which leaves nothing for limewashing the buildings and other little expenses. I suggest that Peermade be asked to increase their grant up to Rs. 125 per annum, instead of Rs. 100 as at present. Gentlemen, I place my resignation in your hands.

5. ACCOUNTS.—The accounts, which were placed on the table, were gone into, and Mr. J. R. Vincent, on behalf of the Meeting, thanked the Chairman and the Hon. Secretary for their reports, and proposed that the accounts be accepted. Carried.

It was resolved that the Honorary Secretary be asked to write the U. P. A. S. I. requesting information as to whether the U. P.A. S. I. will considerably decrease their expenditure in 1921-22, owing to theex tremely depressed condition of the tea and rubber industries, and point out that estates belonging to affiliated Associations are endeavouring in every possible way to curtail expenditure, and look to the U. P. A. S. I. as parent Association to do the same.

6. REPORT OF THE DELEGATES TO THE MEETING OF THE GENERAL COMMITTEE, U. P. A. S. I., HELD AT COIMBATORE ON DECEMBER 6TH, 1920.—The delegates having made their report, which was adopted, the Chairman proposed a hearty vote of thanks to Messrs. J. R. Vincent and G. McPherson for the work they had done on behalf of the Association. With regard to the increase of cess for the last quarter of 1920, the Meeting noted with regret that the U. P. A. S I. has increased the amount in the face of opposition from three Associations, and hopes that this will be the last instance of its kind in view of the present critical financial position of the industries concerned.

7. MYCOLOGICAL STATION.—The Honorary Secretary read a letter from Mr. Thomas, the 1st Assistant Mycologist, requesting the immediate provision of Laboratory furniture as per an enclosed list. Mr. Vincent explained the position, and, after some discussion, it was proposed that the Committee draw up an estimate and place it before the U. P. A. S. I.—Carried.

The Honorary Secretary having read a list of work requiring to be done to complete the Station, was requested to approach the U. P. A. S. I. on the question of a well, as Mr. Thomas, the Asst. Mycologist, has informed the Association that the amount of water required is 500 gallons per diem. The present well being inadequate, it is necessary either to have it deepened, or cut a new one.

The 1st Assistant Mycologist having been instructed by Government to confine his attentions to one estate for the present, Mr. Vincent kindly offered to provide him with house accommodation and assistance, which the meeting accepted with thanks.

8. RICE ISSUES ON ESTATES.—After discussion, it was agreed that members should be asked not to issue more than 4½ measures of rice per rupee.

9. RUBBER RESTRICTION OF OUTPUT.—The Honorary Secretary of the Sub-Committee made his report, and it appears that all estates are carrying out the proposals of the R. G. A. The meeting resolved that estimates for crop for the year 1921 be sent to the Restriction Committee without delay, and that actual figures of crop realised each month should be forwarded to the Committee in the following month. The details were left to the Restriction Committee.

10. BUILDING CONTRACT RATES.—It was proposed by Mr. Miller that a Committee of three be formed to go into the matter of contract rates in the district, and that a schedule be drawn up, printed, and distributed. This was seconded by Mr. Fitchett, and carried. It was resolved that the Committee be formed by Messrs. Miller, Fitchett and Vincent.

11. CORRESPONDENCE.—The Honorary Secretary read a letter from the Chief Engineer on roads.

12. SOUTH INDIAN PLANTERS' BENEVOLENT FUND.—Mr. J. R. Vincent explained the financial position of the S. I. P. B. Fund, and made an appeal for subscriptions. A list was circulated and Rs. 991 were promised by the members present for the year 1921, and Rs. 520 were promised in advance for 1922.

13 ELECTION OF OFFICE-BEARERS, 1922.—It was proposed by Mr. Fitchett that Mr. J. R. Vincent be asked to again take up the duties of Chairman of the Association, and that Mr. Moulton be asked to continue as the Honorary Secretary, this was seconded by Mr. Miller, and carried.

The following members were elected by ballot to form the Committee of the M. P. A:—

Vice-Chairman ...	Mr. T. W. H. Fitchett.
Committee Members ...	Mr. F. G. Miller. Mr. C. L. McLean. Mr. E. Hall. Mr. G. McPherson.

With a hearty vote of thanks to the Chairman and Honorary Secretary the Meeting terminated.

(Signed) T. W. H. FITCHETT,

Chairman.

(„) F. H. MOULTON,

Hon. Secretary.

INDIAN TEA ASSOCIATION.

ABSTRACT OF PROCEEDINGS OF A MEETING OF THE GENERAL COMMITTEE, HELD AT CALCUTTA, ON 18TH JANUARY, 1921.

CORRESPONDENCE WITH THE INDIAN TEA ASSOCIATION, (LONDON).—The principal subjects dealt with were:—

(*a*) *Regulation of Sales.*—It was noted from these letters that two important agencies in London found themselves unable to undertake not to make forward sales, if the opportunity arose, and on this account unanimity in London could not be secured. The cable advices from the London Committee to this effect were mentioned in the proceedings of 21st December, 1920. As then arranged, members were advised that all restriction as regards selling privately was, for the time being, suspended, although public sales would continue to be regulated to meet demand. It subsequently became known, however, that a private auction of considerable magnitude had been held, thereby jeopardising the utility of public auctions. This position was considered at a special meeting of sellers on the Calcutta market on 10th January, 1921, when the following resolution was carried unanimously:—

"That sales be continued to be regulated as at present to meet demand, and there shall be no private selling except for balances of 1920 or 1921 crops."

RESTRICTION OF 1921 CROP.—After noting that support from Indian controlled concerns representing over 56 million lbs. had been obtained, consideration was given to a further cable of 14th January, 1921, from the London Committee, in the following terms:—

"Restriction please telegraph immediately result of your enquiries regarding amount of support obtained on your side, Committee must make recommendations to members here without further delay and your figures of support are urgently required."

It was now decided to send a reply in the following terms:—

"Restriction scheme generally supported except as regards Indian iowned concerns over 56 million lbs. definitely agreed. This does not nclude young gardens and gardens producing less than 4½ maunds per acre. Will send supplementary telegram later."

The total has now reached over 58 million lbs., and the Secretary was instructed to get into touch with the few members who had still to reply to the circular reference.

Consideration was also given to references from members regarding allowances for considerations other than those detailed in the report published with circular No. 77, dated 10th December, 1920, and it was decided to inform those members that allowances other than those specified in the above report were not contemplated. Advices are now awaited from London regarding the support from Ceylon to the restriction scheme, and having now advised London of the support promised by Indian controlled concerns, the Committee hope soon to be in a position to advise members what has definitely been decided regarding the 1921 crop.

In reporting the position of the 1921 restriction proposals to the Branches and local Associations, the Secretary was instructed to enquire what progress had been made towards inducing non-members to co-operate, and to ask at the same time for lists containing the names and the estimated acreage and production of Indian gardens, in the respective districts, which are not members of the local Associations.

REGULATION OF SHIPMENTS OF TEA FROM INDIA.—It was mentioned in the proceedings of 4th January, 1921, that the Committee were considering the advisibility of arranging for shipments to be regulated on the basis of the actual 1920 crop figures. In their circular No 5 of 15th January, 1921, the Committee subsequently asked members to state whether they were prepared to restrict their total shipments of tea from Calcutta and Chittagong, during January, 1921, to 8% of the actual 1920 crop. At the same time members were requested to furnish figures of their 1920 crop, along with figures of shipments from both ports, from the start of the 1920 season to the 31st December, 1920, and it is hoped this request will receive immediate attention. Meantime a cable of 14th January, 1921, from the London Association, had been received in the following terms:—

"Committee recommend that restriction of shipments be continued at 8% during February. We are advised warehouses will not be able to accommodate more and only so much if shipments from other countries are restricted."

It was now decided to circularise members with the text of this cable, and to invite replies as to whether they would be prepared to restrict their February 1921 shipments to the 8% margin which had been recommended.

THE PRESENT POSITION OF THE TEA INDUSTRY.—The Committee had before them the replies from members to the confidential reference of 22nd December, 1920, asking for particulars of (*a*) the acreage and crops of any gardens which are closing down entirely, and (*b*) the acreage and normal crops of any gardens which will be kept in cultivation, but not plucked, during the ensuing season. It was gratifying to note that the acreage reported to be going out of cultivation was not excessive, and it was decided to pass these particulars on to London for the confidential information of the Committee there, along with particulars received from members of estates being kept in cultivation, but not plucked during the ensuing season.

OCEAN FREIGHT AGREEMENT: TEA RATE FOR JANUARY, 1921.—A letter, dated 5th January, 1921, had been received from the Bengal Chamber of Commerce intimating that the tea rate for January, 1921, would be £6 10*s.* 0*d.* Members of the Association had been circularised to this effect, and the information had been cabled to (1) the Indian Tea Association, London, and (2) the Ceylon Chamber of Commerce, according to the usual understanding.

In connection with these rates the following cable of 11th January, 1921, had been received from the Indian Tea Association, London :—

"Can you supply any information as to reasons for increase in tea freight for December and January in view of general fall in freight. Please telegraph particulars of rough cargo rates from Calcutta to ports in the United Kingdom other than London and to continental ports."

And it was arranged to cable the following reply to the London Association :—

"Reference your cable 11th January explanation high rate freight December January due to forward bookings of rough cargo. Reduction will not be felt until forward bookings have been shipped. Current rates jute linseed Hamburg, Antwerp, Rotterdam 55s. Marseilles 65s. London, Dundee, Liverpool 70s. deadweight 5s. less all destinations, writing fully to-day's mail."

Members are of course aware that, according to the ocean freight agreement the tea rate is based on the average rates for shipments of (1) rice wheat (2) linseed (3) jute. There were no shipments of rice and wheat to reduce the December and January rates, which were accordingly based on the rates for linseed, and jute. The rates now ruling for jute and linseed are given in the above telegram, and it will be noticed they show a considerable reduction. Owing to forward bookings, however, the immediate fall does not affect the tea rate as, so long as these forward bookings have to be worked off at the higher rates, the tea rate must remain high. The Committee understand, however, that two lines are now giving shippers the benefit of the reduced rates against these forward bookings, and it is, therefore, fully anticipated that the February rate will show a considerable reduction on the rates for the two preceding months. It is understood, however, there is still dear freight for London with the other lines, who have not so far agreed to give shippers the benefit of the reduced rates.

INTERNATIONAL LABOUR CONFERENCE.—A letter of 6th January, 1921, had been received from the Millowners' Association, Bombay, forwarding copy of the proceedings of a meeting of representatives of employers of labour in India, held in Bombay, on 14th December, 1920. It was noted from the proceedings of the Conference that Mr. N. B. Saklatvala, of Messrs. Tata Sons, Ltd., Bombay, had agreed to accept nomination as the employers' delegate to the Geneva Conference in April, 1921, and that the Association was now asked to submit the name of one or more gentlemen who would act as advisers to the delegate on matters concerning the Association. It was also noted that the Conference had decided to appoint a Committee, on which the Association was not represented, for the purpose of formulating a suitable scheme, and drawing up the necessary constitution and rules, for a proposed Federation of Associations of employers in India.

The Chairman agreed to allow his name to be submitted as the Association's adviser to the delegate, and it was decided, in intimating this fact to the Branches and local Associations, to send them copies of the Millowners' Association's letter, and of the proceedings, with a request for the names of any additional advisers they desired to put forward. It was further decided to inform the United Planters' Association of Southern India of this action, and to suggest that they should appoint their own advisers to lay the interests of that Association before the delegate chosen.

TEA SEED CONTACT.—With a letter, dated 13th January, 1921, the Committee received, from the Calcutta Tea Traders' Association, copy correspondence regarding the necessity for making clause 6 of the above contract more explicit in its terms. It was suggested that the present clause 6 should be altered to read as follows :—

" The seed to be examined and passed by a third party to be mutually agreed upon, whose decision shall be final, not later than 3 clear days after the date duly notified by the sellers on which the seed is ready at the garden or arrives at Calcutta or Goalundo, etc. etc."

The Committee agreed to give effect to this alteration, and they decided to inform the Calcutta Tea Traders' Association accordingly.

ANNUAL GENERAL MEETING.—It was resolved to hold the annual general meeting of the Association on Friday, 11th March, 1921, at 3 P.M.

MANGO-HOPPER CONTROL EXPERIMENTS

BY

E. BALLARD, B. A.,

Government Entomologist, Madras.

[*Reprinted from the Agricultural Journal of India*, Vol. X, Part IV.]

EXPERMENTS in the control of the mango-hopper *Idiocerus niveosparsus* were begun at the end of 1913, and beginning of 1914. These were initiated too late in the season to be of any benefit to the trees experimented upon, and no results of any value were obtained.

In December, 1914, another series of experiments was taken in hand. These were carried out in two tracts, one near Salem in a tope belonging to the Salem Zemindary at Varagambady, and another at various places round Chittoor

Both were conducted on the same plan. The results of the control measures taken in the Chittoor District were largely of no value, as the flowering season was a bad one. At Varagambady, however, more conclusive results were obtained, and it is with these, more especially, that this paper deals. Fifty-five trees were selected for the experiment. These trees were mostly fifteen years of age, and were all grafted trees yielding valuable fruit. The whole tope, which was divided into two portions, consisted of some 800 trees. At the beginning of the season, owing to some unknown cause, there were only comparatively few hoppers, and at first it seemed as though the experiment would be inconclusive for this reason.

As the season progressed the numbers increased, but the conditions were not so serious as they were at a corresponding season in 1913-14. On the whole, the results obtained were sufficiently encouraging to give hopes of even more complete success in the 1915-16 season.

THE PEST.

Idiocerus niveosparsus is the cause of great annual loss to mango growers of Chittoor and Salem. In a badly attacked mango tope the trees are covered with sticky secretion, the flower shoots blacken and wither, and no fruit is set. The continual tap-tapping of the insects as they fly from leaf to leaf resembles the sound of a shower of rain falling on the trees. A really severe attack means the total loss of the crop, and the greatly diminished vitality of the trees.

Idiocerus lays its eggs in little slits made in the tender leaf and flower shoots. There are apparently many broods in the year, and the life history is a short one. The young hoppers emerging from the eggs feed at once on the leaf of flower shoots, and the little black marks made by the continual puncturing of the tissues can easily be distinguished. Eventually the flower shoot is either incapable of producing fully formed fruit, or else dries up completely. In addition to the puncturing of the tissues of the new shoots, a large quantity of "honey dew" is secreted, and covers the leaves of the affected trees.

The adult insects are extremely active, and are therefore beyond the power of the spraying machine to harm them.

With this fact before us, it was decided to begin spraying directly the young shoots were formed, so as to kill as many nymphs as possible before they attained their wings.

The insecticide selected was Crude Oil Emulsion, and it was applied by means of a Holder pressure sprayer of 10 gallons capacity. 1 lb. of emulsion was used for 10 gallons of water.

A careful watch was kept on the trees, and as soon as new shoots were put forth, spraying was begun. Inevitably some trees were sprayed more frequently than others, as they flowered or put out new leaves earlier than others.

Once a tree had produced new leaves it was sprayed once in every ten days, and latterly every eight days until the fruit had set, and it was considered to be beyond the power of the pest to harm it. In future experiments the spraying will be done every eight days, from the beginning. Spraying lasted from the beginning of December to end of March.

The spray was distributed over the whole tree and the trunk. Special attention was paid to the leaf shoots and flower heads, on which the nymphs and adults clustered. Towards the end of the experiment one or two sprayings were done with a Fish-oil Soap made by the Oil Expert to the Fisheries Department, Madras. This was a most satisfactory mixture, for it stuck all the insects it hit to the shoots, leaves, etc., upon which they were resting, and one could see the gratifying results of the havoc which it wrought in the ranks of the hoppers. This soap should prove superior to crude oil, and will probably be cheaper.

The total average cost of the sprayings was estimated at 8 annas a tree. This is a very liberal estimate, 6½ to 7 annas being probably more nearly the real cost. But even at 8 annas the cost was justified by the results obtained. In the previous year not a single mango was sold from this tope, and the crop, owing to the hopper, was a total and complete failure.

Appended is a table* showing the number of trees sprayed, and the harvest gathered therefrom. The control trees were taken at random. One of these produced 500 mangoes, but was absolutely exceptional, and had not suffered at all from the hoppers. The remaining trees were much closer to the usual condition of trees in a badly attacked tope.

The total number of fruits gathered from the sprayed trees amount to 2,044. Five of these trees produced no flowers at all, and nine flowered so late in the season that in any case very few mangoes could be produced. If the harvest from No. 1 control be deducted, as it legitimately may be since it is obviously an abnormal tree, the yield from the unsprayed trees was 642.

This would bring in a return of Rs. 24, while the sprayed trees would be worth Rs. 80, at Rs. 4 per hundred. If Rs. 25 be deducted for the cost of spraying, a substantial profit is still left. There is little doubt that spraying is profitable.

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* Not reproduced.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore,
29th January, 1921.

SECRETARY'S REPORT NO 5.

1. COORG RAILWAY.—With reference to the note on this subject in the Report of the Executive Committee at the Meeting of the General Committee, held on 6th December, 1920, necessary particulars having been received, the Government of Madras has been addressed, and the early construction of this branch line has been urged.

2. PERIAKULAM KURUVANUTH ROAD.—With reference to the resolution passed at the last Annual Meeting, the Government of Madras replied on the 28th October last that the matter would be duly considered. The Central Travancore Planters' Association have drawn attention to the fact that, up to date, no steps have been taken to put this road into repair. The Government of Madras have again been addressed with a renewed request for the immediate repair of this road.

3. INTERNATIONAL LABOUR CONFERENCE, GENEVA.—In continuation of Item 3, Report No.3, the Executive Committee decided to ask Sir Fairless Barber and Mr. H. Waddington if they would accept nomination for the post of Adviser to the Delegate for Employers of Labour in India as representing "Organised" Agriculture. Sir Fairless Barber has not been able to give a definite acceptance, and Mr. Waddington's nomination has been forwarded for the consideration of Government. Subsequent to this, the following note has appeared in the "Hindu":—

> "News has been officially received that the third International Labour Conference, which was to have been held at Geneva in April, 1921 has been postponed till October next."

Finally a letter has just been received from the Indian Tea Association notifying that Mr. A. D. Gordon, M. L. C., Chairman of that Association, has been nominated as the Association's Adviser to "the Delegate already chosen to represent employers at the Geneva Conference in October, 1921."

4. RUBBER MYCOLOGIST.—Intimation has been received from the Director of Agriculture that Mr. Ashplant has accepted the post of Rubber Mycologist, and that it is expected he will arrive some time during the month of March.

(Signed) C. H. BROCK,
Asst. Secretary.

Coimbatore,
9th February, 1921.

REPORT No. 6.

1. AUXILIARY FORCES ACT.—The Advisory Committee under the provisions of this Act have been constituted by G.O No. 55, dated 5th February, 1921. The Committee for the Nilgiris and West Coast Area (which includes the districts of the Nilgiris, South Kanara, Malabar and Coimba-

tore, and the States of Travancore and Cochin, and the enclaves of Anjengo and Tangasseri is as follows.—

(1) G. W. Wells, Esq., I.C.S., Collector of the Nilgiris, Ootacamund.
(2) Major R. M. Rainsford, D.S.O.
(3) H. R. Lockie, Esq., Calicut.
(4) Major C. H. Brock, Asst. Secretary, U.P.A.S.I., Coimbatore.
(5) A. S. Dandison, Esq., Katery, Nilgiris.

2. SECRETARY'S LEAVE.—Owing to the difficulty in obtaining passages, Mr. Waddington has had to accept a passage allotted to him from Colombo on the 19th proximo, which is about a month earlier than he wished to start.

3. EXPORT DUTY ON TEA.—At a special meeting of the Dooars Planters' Association, held on the 4th January, the following resolution was passed :—

> "That this Meeting of the Dooars Planters' Association is of opinion that the immediate repeal of the Export Duty on Tea should be strongly urged on Government. Under any circumstances an Export Duty on the produce of a country is recognised by all Governments as economically unsound, being virtually a tax on the labour of the country in which it is imposed, and in the present critical state of the tea industry the retention of the export duty is an intolerable and unjustifiable burden."

At an Extraordinary General Meeting of the Darjeeling Planters' Association, held on the 15th January, it was resolved :—

> "That the Government of India be moved to take immediate steps to remove the Indian Export Duty on Tea, having regard to the serious financial crisis through which the Indian Tea Industry is now passing."

Mr. D. C. Darua, in the Legislative Council, will advocate the abolition of the Export Duty on Tea and the grant of remission of land revenue to the tea industry as a whole, and an offer of financial help to those Tea Gardens which are unable to obtain assistance from established Banks.

Action is also being taken at home, as the South Indian Association in London have written a strong letter to the Secretary of State for India, urging the immediate withdrawal of this duty. The Secretary of State has also been addressed by the Indian Tea Association in London, so it is clear that our friends at home are doing all they can to assist us.

(Signed) C. H. BROCK,
Asst. Secretary.

NOTES AND NEWS.

The U. P. A. S. I. Gazette.

Mr. J. R. Vincent, Kutikul Estate, Mundakayam has been elected Chairman of the Mundakayam Planters' Associatiou *vice* Mr. T. W. H. Fitchett, resigned.

The Rubber Market.

"Macson" writes in the "India Rubber Journal" under date the 13th January, 1921 ;—

> "The market has not been able to hold on to all the advance, and the remaining improvement in price does not reflect a corres-

ponding improvement in the trade conditions. It probably represents the action of capital deserting investment in production, and turning to the storing of a too cheap commodity. The proposed 50 per cent. tapping restriction has a very real value in helping capital to make up its investment mind.

"The Goodyear meeting has taken place, and has been again adjourned. Agreement has been reached by the stockholders to authorise the bankers to issue bonds; but various heavy deferred creditors are pressing for immediate payment. Final agreement has not yet been arrived at.

"No final statement has yet been forthcoming from the Dunlop Rubber Company directors, but according to a report from the States, the American Factory has decided to restrict output for the present.

"New York has had to drop back again a little after following the advance; Spot sheets are 19½ cents, after reaching 21.

"Singapore sheets are quoted at 11½d. per lb., with rather pressure to sell—a profitable prospect for shippers to London."

Tea.

Cable advices from home do not unfortunately show a continuation of the stronger tone apparent with the resumption of auctions in the New Year. We note a Ceylon correspondent says Russia is expected to buy Rubber in the Colombo market at no distant date. If only as much could be said of Tea, prices no doubt would harden.

Coffee.

Our cable this week shows a welcome advance of 3s. per cwt., but advices by the mail continue to emphasize the quiet nature of the market. No doubt we shall see more activity with the arrival of the new season's crop.

Voluntary Restriction in Force.

Thus the "Straits Times":—

"We have just made a comparison of the rubber outputs by seventeen companies of September and December. All these Companies, we believe, entered into the compact to reduce output as from November 1, by 25 per cent. Their total output in September was 943,623 lbs., and in December it was 847,429 lbs.—a reduction of about 11·3 per cent. Five of the seventeen companies shew an increase on the September figures. It is to be presumed that managers have authority from their directors to violate the agreement. If not, some of the unemployed should find billets by taking the place of the disobedient."

Ceylon Tea.

The following are particulars of Ceylon Tea exported by rail *via* Tallaimannar to the following stations in South India:—

	lbs.
Adiramapatanam	130
Tinnevelly	30
Total ...	160

These figures are taken from the "Ceylon Chamber of Commerce" Weekly Price Current, dated 24th January, 1921.

Inter-District Tennis.

Only one reply has been received (apart from the U. P. A. S. I. entry), and that is to the effect that South Mysore has decided not to pay the entrance fee out of the Association's funds, and has left the matter to private individuals. We hope a team will be entered, and would remind everybody that time presses. We had hoped to put quite a number of entries before the meeting of the Executive Committee on Monday next.

Cooly Labour.

"The Colombo correspondent to the "India Rubber Journal" says:—

> "A careful effort is now being made by estate agents and the Ceylon Government to prevent repatriation of South Indian Tamil Labour. The former has already sent a lot of excess labour from their low country estates to their up-country plantations, where labour is wanted. The Government Labour Bureau has found that, so far, there are 4,487 excess coolies, especially on low country estates, as against a demand for 12,371 coolies, mostly from up-country estates. It is thought that lowering of the price of rice will make repatriation unnecessary."

LETTERS TO THE EDITOR.

[*The Planters' Chronicle is not responsible for the opinions of its Correspondents.*]

The Auxiliary Forces.

Sir,—Can you give me any information about the Auxiliary Forces, concerning which there seems to be a decided lack of interest up to the present. Has the S. P. M. R. been disbanded? If it has, what body (if any) has replaced it?

Other countries seem to be going ahead with their voluntary service, notably the F. M. S. and Ceylon; but in India, which probably is far the more likely of the three to require the services of a volunteer regiment, nothing seems to have happened. I am referring more particularly to South India. In the Northern cities, the movement appears to have met with a certain amount of success; not, I think, due to the more warlike spirit of the European community, but to the fact that information is available as to the volunteer bodies actually in existence. My application to be enrolled in any old regiment which happened to be in existence, forwarded to the H. Q. at Bangalore, met with the usual fate, since then I have rather lost interest, but unless someone gets a move on, and soon, I am afraid that when Government wants men, it will find it exceedingly difficult to get them. I enclose my card, and remain,

Yours, etc.,

(Signed) ANTI-N. C. O.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" Coffee.

(BY CABLE.)

LONDON, DATED 11TH FEBRUARY, 1921.

115s. per cwt, Market Quiet.

PASSING EVENTS

This time of the year is the season for Planters' Association meetings, previously they were annual General meetings, but now-a-days in the majority of cases they are ordinary Quarterly meetings, as most Associations have altered their financial year to coincide with that of the parent association, which ends on 31st March. Thus we have had in the past month or so (including this week) proceedings from eight different Associations, and we propose spending a half hour over them, as being the best means of putting ourselves *au fait* with passing events. If we couple these proceedings with the reports of the Secretary, U. P. A. S. I., which have now become a weekly feature, we arrive at a very fair estimate of what is thought in the districts and what is being done at Head Quarters to meet the requirements of the District Associations.

We may pass by, with but a slight reference, certain settled matters, such as the Railway Rates on Tea and Shipping freights, which have both been reduced, and proceed to discuss the very important question of subscription to the U. P. A. S. I.

At a time like this it is natural that an increase in the cess should be looked at askance by subscribers, and although the proposal was finally carried unanimously, or at least *nemine contradicente*, there has been ample evidence of a desire on the part of District Associations to see expenditure reduced wherever possible. That the Executive Committee have been mindful of this will be seen by the report of their last meeting, appearing in this week's issue. Unfortunately this curtailing of the activities of the parent association must clash with another subject, which forms the main plank in the deliberations of so many district Planters' Associations. Labour, it has been said, is not always with us; a pretty wit, however, does not save us from the spectre, and since criticism of the Labour Department tends generally towards the necessity for its extension, it is difficult to reconcile the two views. At a time like the present when we are all, so to speak, in the throes of a storm, it seems sufficient that means should be taken for the saving of the ship. Well, sail has been shortened, and we have but to carry on under reduced canvas to weather the adverse conditions. Let us hope that the time will not be long before we can again clap on the last stitch.

Crop restrictions, another important item met with, are all part of the general need for care; there is little more to be said about it. Both in Rubber and Tea drastic restrictions may now be said to be the order of the day, and we can but wait before judging its effect. In the midst of the general depression and talk of closing down, the need for economy, etc., it would seem to have occurred to some Associations that the question of Inter-District Sports should lie over till better times. We confess we do not quite understand the attitude of the South Travancore Planters' Association in the matter of the proposed tennis tournament. The tournament was expressly designed to save as much travelling as possible, and it should not be a difficult matter for three planters from any one district to meet three others in the same group, even though it means their absence from the Estates on two or three occasions during the year. The financial side is explicable, though here again we do not suppose it is the initial Rs. 100 which hurts. With 20 Estates in it, an Association ought not to boggle at Rs. 100, or Rs. 5 each. The personal expenses of the players is another matter, but should have been thought of, and anyhow will be just the same problem a year hence as now. Briefly, the last thing desirable in the community is to mope. To say that, owing to the depression in the planting industries, crops will be restricted, manuring stopped, extensions held up, in short, that rigid economy will be enforced, is to talk sound common sense; but to say that for this reason we shall not meet and play tennis savours of, well, "getting the wind up." So far the following have entered teams:—The U. P. A. S. I., Anamalais, High Range, Nilgiris and West Coast, while South Mysore have left the matter to individuals who will, we hope, enter before it is too late. The Executive Committee have asked Messrs. E. Vincent, C. H. Brock, and J. N. A. Eaton (all of the U. P. A. S. I.) to form the Controlling Committee. In our next issue that Committee will issue a final notice, so that the entries may all be in, and the draws published by March 5th.

SOUTH MYSORE PLANTERS' ASSOCIATION.

PRESENT.—Col. W. L. Crawford, D. S. O. (President), Messrs. H. F. Anderson, T. Anderson, C. H. Godfrey, F. M. Hamilton, Capt. E. M. Nixon, Messrs. W. F. Scholfield, E. H. Young, and A. L. Hill (Honorary Secretary).

VISITOR.—Mr. F. W. Winterbotham, Superintendent, U. P. A. S. I., Labour Department, Mangalore.

I. After some discussion, the minutes of the last meeting were read and confirmed.

II. Confirmation of the grant of Rs. 200 made to the St. George's Home, Kodaikanal. The following resolution, proposed by Mr. C. H. Godfrey, seconded by Mr. F. M. Hamilton, was carried:—

" That the grant of Rs. 200 to the St. George's Homes, Kodaikanal, be confirmed, but that it should not constitute a precedent for grants to any charitable institutions."

III. Election of Members. The following were elected:—

Mrs. C. J. Hayward: Proposed by Mr. W. F. Scholfield, seconded by Mr. A. L. Hill.

Mr. K. R. Krishnaswamiengar: Proposed by Mr. B. Krishna Singh, seconded by Mr. A. L. Hill.

Mr. Sheshaiya, B.A., B L.: Proposed by Mr. T. Anderson, seconded by Mr. W. L. Crawford.

The first named with effect from 1—9—20: the last as a personal member. The following resolution, proposed by Mr. C. H. Godfrey and seconded by Mr. W. F. Scholfield, was carried:—

"That the Hon. Sec. writes to the proposers of the remaining candidates for election that, according to the rules, the latter cannot be elected as *members*, but can be accepted, and will be, as representatives with full voting powers on due authorisation by the acting representatives of the subscribing estates concerned: further that, at any time they can be elected as personal members."

IV. The U. P. A. S. I. General Committee Meeting on 6—12—20:—It was explained that we were not represented at that meeting, as neither of the representatives could attend, and, owing to a serious delay on the part of the Post Office in delivering our letter to the Secretary, U. P. A. S. I., asking him to arrange for our representation, he was not able to arrange it.

Incorporation.—The last letter from the Secretary, U. P. A. S. I. was read, and the seven promoters arranged for.

Increased subscription for the last quarter of 1920—1921:—It was put from the Chair and carried that this should be met out of the funds of the Association, without calling for an increased subscription.

Inter-District Sports.—It was decided that the Association should not pay the subscription, but that this should be left to private individuals.

V. Hassan District Conference.—Colonel Crawford, who represented us at this, reported that all prospects of an early construction of the Hassan-Mangalore Railway seemed to have vanished, owing to the stringency of the money market and the disinclination of the Mysore Durbar to undertake their share of the cost and to favour this line at the expense of the Bhatkal project. Similarly, owing to lack of funds, the Hassan-Chikmagalur project has had to be shelved.

VI. After considerable discussion, it was decided that the scheme for the formation of a Coorg and Mysore Machine Gun Company (Motor) should be cordially supported. It was also decided that, at the Joint Meeting of the three Mysore Associations to be held at Chikmagalur on 7-2-21, Col. W. L. Crawford, D. S. O., should be put forward and supported as Commandant of the Corps, and as one of our representatives on the Advisory Committee.

VII. Scheme of co-operation, with the other Mysore and the Coorg Associations, to protect our labour interests in South Kanara:—Mr. F. W. Winterbotham, Superintendent, U. P. A. S. I. Labour Department, Mangalore, read a statement *re.* the work of his department for this and for other districts, and explained the methods of various private labour agencies in South Kanara. The following resolution, proposed by Mr. F. M. Hamilton, and seconded by Mr. C. H. Godfrey was then carried:—

"That this Association, together with the Bababudin and the North Mysore Planters' Associations, urge upon the U. P. A. S. I. that no member of the U. P. A. S. I., or affiliated Association, who maintains a private labour agency in South Kanara, be permitted to use the U. P. A. S. I. Labour Department for the execution of warrants against maistries or coolies supplied by such private agency."

VIII. Mr. C. H. Godfrey raised the question as to why, in view of the decision of the Annual General Meeting in March, 1920, not to raise the labour rates of pay, and of the absence of several members in England, the rates had been raised from 1-12-20. The President and others explained the reasons for the increase, and the need there was for immediate action. The reasons were accepted by the meeting as adequate, and acquiesced in.

With a vote of thanks to Mr. Winterbotham and to the Chair, the meeting terminated.

(Signed) W. L. CRAWFORD,
President.

(Signed) A. L. HILL,
Honorary Secretary.

NILGIRI PLANTERS' ASSOCIATION.

AT THE QUARTERLY GENERAL MEETING OF THE ABOVE ASSOCIATION, HELD AT THE COLLECTOR'S OFFICE, ON THURSDAY THE 3RD FEBRUARY, 1921, THE FOLLOWING MEMBERS WERE PRESENT.

PRESENT.—Messrs. J. B. Vernede (in the Chair), A. K. Weld Downing, A. S. Dandison, J. B. Leslie Rogers, E. Sydenham Clarke, L. F. Lake, Major L. L. Porter, W. A. Cherry, G. F. Weston Elwes, Captain E. G. Windle, N. J. Stanes, W. C. Deane, C. St. John Ives, M. J. L. Hayne, Geo. Oakes and A. N. Hearn (Honorary Secretary).

1. Notice calling the meeting was read.

2. THE LATE MR. T. J. KENNA.—The President spoke as follows touching the death of the late Mr. T. J. Kenna:—

" It is with much regret I have to refer to the sad death of the late Mr. T. J. Kenna, who was a well known Planter of Kotagiri. His loss is deeply felt amongst the planting community."

3. Proceedings of Meeting of 11th November and 3rd December, 1920, were confirmed.

4. Election of Chairman—Proposed by Mr. Dandison and seconded by Mr. Elwes that Mr. Vernede be asked to carry on till the General Meeting, when the annual election of office bearers is held.

Mr. Dandison asked leave to inform the Meeting that he had not received sufficient notice to attend the District Board Meeting on 27th January, and read his letter to the President, District Board. Mr. Dandison was requested to question the validity of the above District Board Meeting's resolution, and the Honorary Secretary instructed to ask why there was no representative from Kotagiri, Kodanaad, or of the whole of the N E. slopes of the Nilgiris, on the Board. The District Board clerk attended and explained the new District Board Act to come into force after the next year (April 1921 to April 1922), that is to say the new Act will come into force in April, 1922. The Honorary Secretary was instructed to ask the President of the District Board to appoint, in addition to Mr. Dandison, Messrs. E. Sydenham Clarke, and W. A. Cherry for Kotagiri and Kodanaad, Major. L. L. Porter for Coonoor, and Mr. J. Harding Pascoe for Kullakambay.

Collection of subscriptions overdue were discussed, and the Honorary Secretary asked to take legal advice, and, if necessary, proceedings through Messrs. Edge and Genge.

EXPORT DUTY ON TEA.—The following resolution was proposed by Mr. A. K. Weld Downing, and seconded by Mr. A. S. Dandison :—

" This Association requests the U. P. A. S. I. to call on the Government of India for the *immediate* repeal of the Export Duty on Tea, as the delay in so doing, is, in view of the serious situation through which the industry is now passing, helping towards a general collapse, which catastrophy, should it happen, will not only ruin the tea planter ; but as a natural sequence place thousands of labourers out of employment. Carried.

MISCELLANEOUS CORRESPONDENCE.—Land for Demobilized Planters. The Honorary Secretary was asked to forward applications through the U. P. A. S. I.

CENSUS OF INDUSTRIES.—The Honorary Secretary was instructed to apply for forms to circulate to the members, as the members of this Association could give no opinion on this matter before seeing the printed forms.

HANDLING OF GOODS.—The following resolution was proposed by Mr. Windle and seconded by Mr. George Oakes :—

" Resolved that the S. I. Railway be addressed requesting that more care be exercised in the treatment of plantation produce, it being the experience of this Association that very few consignments packed in chests or bags reach the coast without extensive damage and loss caused by careless handling. '—Carried.

INTER-DISTRICT SPORTS.—The Honorary Secretary was asked to recruit a tennis team, and to circulate a subscription list to the members of the Association.

Mr. Dandison was elected to represent the Nilgiri Planters' Association on the General Committee of the U. P. A. S. I.

The Honorary Secretary was asked to write and thank the S. I. Railway for the extra accommodation at the Katary Road Station.

With a vote of thanks to the Collector for the use of the room, the meeting terminated,

(Signed) J. B. VERNEDE,
Chairman.

(Signed) A. N. HEARN,
Honorary Secretary.

SOUTH TRAVANCORE PLANTERS' ASSOCIATION.

Proceedings of the Third Quarterly Meeting, held in Quilon Club, on Saturday, 5th February, 1921, at 10 a. m.

The following were present, or represented by proxy :—

Messrs. J. B. Cook, (Chairman), R. N. W. Jodrell, J. L. Hall, T. L. Jackson, H. Clarke, and J. R. N. Pryde (Honorary Secretary).

(Messrs. Branson and White sent proxies, which were not completed, and could not be accepted).

VISITOR.—Mr. C. J. Hall.

MINUTES of the last quarterly general meeting were taken as read, and confirmed.

CORRESPONDENCE.—The Honorary Secretary reported that the L. A. N. I. had accepted the proposal made at the last meeting as to the new subscription, which had now been paid, A letter from the Chief Secretary to Government *re.* the Rani-Manimala road was received, and copy had been sent to the estates interested.

From the correspondence the subject of Inter-District Sports arose, and was discussed at some length. The proposal as outlined in the "P. C." of 29th January was approved of, but the general opinion was that, in the present regrettable state of the planting industry, the expense to associations, which ultimately fell on Estates and to Planters was a consideration which could not be ignored, and at the present time Superintendents could not well be spared from Estates. While wholly approving of the scheme, it was thought that it should be held over for a year, by which time it was to be hoped that time and money could more easily be spared. The Secretary was instructed to convey this opinion to the Sports Committee.

GRANTS OF LAND TO DEMOBILIZED PLANTERS.—Only one application had been received, and, as that was for land in Travancore, it was decided that it was not a matter to be brought by the U. P. A. S. I. before the Government of India, and also that the Travancore Government should not be approached with only one application. The Secretary was instructed to inform the U. P. A. S. I. and the applicant, accordingly.

INCORPORATION.—The subject of admission of Superintendents of Estates to membership was discussed, and it was resolved:—"That all Superintendents of Estates which are members of the Association shall become personal members from 1st April."

It was also resolved:—"That the Committee revise the rules to conform to the new Articles of Association," and it was decided that this be done before the annual meeting in May, when Incorporation will be completed.

After some informal discussion on other matters, the meeting closed.

(Signed) J. R. N. PRYDE,
Honorary Secretary.

10-2-21.

WEST COAST PLANTERS' ASSOCIATION.

Proceedings of the Third Quarterly General Meeting of the West Coast Planters' Association, held at Calicut, on 15th January, 1921.

Members present—Messrs. S. P. Eaton (Chairman), C. E. M. Browne, A. F. Campbell, J. M. Poyser, C. Jackson, H. Grieve, E. Simpson, C. W. Hadwen, J. Bone, E. H. Collbrook, R. Turner, A. Middleton, A. H. Mead (by proxy), G. Bayzand, (Honorary Secretary). Visitor—Mr. W. R. John.

The notice calling the meeting was read. The minutes of the last meeting were taken as read, and confirmed.

437. RESTRICTION OF OUTPUT.—Mr. Browne remarked that very little if anything was to be gained by discussing this subject, because we have no say in the matter, as decisions on this point are all in the hands of the Directors of Companies.

Mr. A. Middleton read a letter from Mr. Mead regarding the setting up of a Committee to check the returns sent in with the estimated restricted output, and it was decided that if asked to do so, this Association was agreeable to help in the formation of such a committee.

The Chairman drew attention to a letter which appeared in the *Planters' Chronicle* of January 8th, from the Secretary, R. G. A., London, and pointed out that either one or all of the three proposed methods for further Restriction of output were now and always had been in force in South India. On discussion, it was the unanimous opinion that this Association was not in favour of further restriction in this country.

438. General Committee Report.—The meeting viewed with apprehension the future possibility of increasing the subscription to the U.P.A.S.I., on account of the depressed state of the Planting Industries.

439. L. A. N. Institute.—This association decided, as an association, to resign from membership, but it was left to any individual who so desires to become a member of the institute, full particulars regarding subscriptions, etc. being read.

440. Roads and Communications.—The following resolution, proposed by Mr. Browne and seconded by Mr. Eaton was carried *nem con* :—

> "That the Honorary Secretary draws the attention of the District Board and Local Fund to the deplorable state of the causeway crossing the river half a mile from Kalikavu village, on the Karuvarukundu-Kalikavu road."

This association views with much approval the grant made by the Cochin Durbar for the repair of the road from the Government Teak Plantations to Edathingal Padom, and the cordial and prompt way in which the Durbar is always ready to meet us, and thinks it would be a good thing if other District and Local Boards would follow its excellent example.

441. Labour Laws.—All five points which were under discussion at the Meeting of the Special Committee held at Madras, on January 6th, were approved of.

442. S. I. P. B. Fund.—It was a matter of some regret that so few members of this Association were either patrons or subscribers to this Fund, and it was agreed that the Hon. Secretary write round and see if something better could not be done.

443. Correspondence.—Letters dealing with matters of interest were read. Mr. John, representing Mr. Thomas, I. C. S., asked the association if they would inform the District Magistrate of the number of coolies, if any, that would be thrown out of employment owing to the present restriction of works, and closing down of Estates, Managers to kindly notify the Honorary Secretary the numbers of any thrown out of work, or returning to their villages from other districts.

The meeting was of opinion that some form of type-writer be supplied to the Honorary Secretary, if funds permit. A sum not exceeding Rs. 275 was voted for this purpose.

DATE AND PLACE OF NEXT MEETING.—In Calicut, on 3rd Saturday of April.

With a vote of thanks to the Malabar Club for the use of the room, and to the Chairman, the meeting terminated.

(Signed) S. P. EATON,
Chairman.

(„) G. BAYZAND,
Honorary Secretary.

ANAMALLAI PLANTERS' ASSOCIATION.

MINUTES OF AN EXTRAORDINARY GENERAL MEETING OF THE ANAMALLAI PLANTERS' ASSOCIATION, HELD AT THE ANAMALLAI CLUB, ON TUESDAY THE 8TH FEBRUARY, 1921, AT 11-0 A.M.

Present.—Messrs. C. R. T. Congreve, (Chairman), E. W. Simcock, F. Simmons, J. A. R. Lloyd, J. E. Carless, J. Hatton Robinson, E. N. House, and J. E. Sampson, (Honorary Secretary).

By Proxy.—Mr. S. C. Biddell.

Minutes.—The Minutes of the Extraordinary General Meeting, held on the 14th December, 1920, were taken as read, and confirmed.

LABOUR MATTERS.—The Minutes of a Meeting of a Special Committee, called under the Local Labour Laws, held on the 1st January, 1921, were taken as read, and confirmed.

MYCOLOGIST :—Read letter No. 2327, of the 17th December, 1920, and letter No. 2522, of the 12th January, 1921, from the Secretary, U.P.A.S.I.

Considerable discussion took place in Committee. The Chairman mentioned that Sir Fairless Barber had offered 5 acres of land on Paralai Estate, if such was convenient to the Association, and had suggested that there might be a suitable site close to the Puthutottam Cardamoms.

The Chairman stated that he had written to the Secretary, U. P. A. S. I., with regard to the possibility of infection from plants inoculated with fungus diseases by the Mycologist, and had been assured that there was no danger, the work being carried out with the utmost care.

The Honorary Secretary was directed to reply to the Secretary, U. P. A. S. I., requesting that the Director of Agriculture and Government Mycologist be asked to come to the District to select the site, there being at least three possible ones. It was considered that the cost of the buildings would largely depend on the site chosen.

INCORPORATION:—Read letter No. 2638, of the 27th January, 1921, from the Secretary, U. P. A. S. I. Mr. C. Fraser being no longer a Member of the Association, it was proposed and agreed that Mr. Robinson shall be one of the seven members required to sign the Articles and Memorandum of Association, and the Honorary Secretary was instructed to advise the Secretary, U. P. A. S. I. accordingly.

COCHIN-MUNNAR RAILWAY.—The Chairman referred to the recent deputation to meet the Dewan of Cochin, and Mr. Robinson proposed a hearty vote of thanks for the Chairman's efforts in this matter.

TRANSPORT:—The Chairman informed the Meeting that a Sentinel Steam Wagon would be coming up the Ghaut about the 20th of this month, as a demonstration, and that Messrs Massey & Co., Ltd. had obtained permission to bring a 6-ton F. W. D. petrol-driven lorry over the bridges, and that this would probably be in the District about the same time as the Sentinel Wagon.

The Chairman considered that it had now become necessary to think of starting a Company for Transport. He had written to the D. F. O., Coimbatore, who had replied that the Forest Department would be glad to make use of lorries for the export of timber. This would considerably help to do away with the difficulty of having much smaller loads from than to Estates, and might also help the Forest Department to increase the export of timber.

The Chairman promised to advise Members of the probable date of arrival of these two lorries.

SHANDIES:—The Honorary Secretary was requested to again approach Mr. Fraser in this matter, and report at a later date. It was agreed that, in the event of future articles of bulky nature being ordered on behalf of the Association, that they should be suitably stencilled before despatch from the vendors, in order that they shall not become mixed with Estate goods.

LABOUR ACTS:—Read Report of Meeting of Special Committee, called by H. E. the Governor, and held in Madras on the 6th and 7th January, 1921.

AUDITORS.—Proposed by Mr. Simmons, and seconded by Mr. Robinson, that Messrs Jones and Cotton be requested to audit the Association books prior to the Annual Meeting.

INTER-DISTRICT SPORTS.—Read letter from the Honorary Secretary, (*pro tem*) Inter-District Tennis Tournament, dated the 29th January, 1921. It was unanimously agreed that this Association shall enter a team in Group "B." It was further proposed by Mr. Robinson, seconded by Mr. Lloyd, and carried unanimously that the entrance fee of Rs. 100 shall be paid out of the Association funds.

The following Committee was elected to deal with this matter:—

Messrs. Congreve, Robinson, Carless, Simcock, and Sampson.

It was decided that this Committee shall meet at the Club on Sunday, the 20th February, and shall that day choose the three Members necessary to represent the District.

LOCAL DISTRICT BOARD.—The Chairman spoke of his recent interview with the Collector on this subject, and mentioned that it was probable that the Board would commence as from the 1st April next.

CORRESPONDENCE :—Read letter from the Sub-Divisional Officer, No 2 Sub-Division, Coimbatore, No. 231, dated the 31st January, 1921, with regard to the main road near Kaliyanapandal.

The Honorary Secretary was directed to reply pointing out that, owing to lack of metal along a large part of the road, it was extremely difficult to maintain this road in proper condition, that sanction to use the only available quarry had only just been received, and that, as no grant from Government towards its upkeep had been received for over a year, Government could hardly expect the road to be kept in proper order. It was further pointed out that about double the Government grant had already been spent on the road. Copies of the letter to be sent to the Superintending and Executive Engineers.

Read letter from Mr. I. Stewart, dated the 5th February, 1921, *re.* possible motor postal service. The Meeting was unanimously of opinion that the present system should be allowed to remain in force, in view of the satisfactory manner in which letters, etc., are being delivered.

PLANTERS' BENEVOLENT FUND.—The Honorary Secretary requested the assistance of those Members present to persuade the few remaining Members of the Association who had not joined this Fund to do so before the end of the current year.

(Signed) C. R. T. CONGREVE,
Chairman.
(„) J. E. SAMPSON,
Honorary Secretary.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore, 16th February, 1921.

SECRETARY'S REPORT No. 7.

The following are extracts from the proceedings of the Meeting of the Executive Committee, held at Coimbatore, on 14th February, 1921, which are of general interest :—

1. U. P. A. S. I. STAFF AND WORK.—The Committee resolved that, when Mr. H. Waddington is on leave Mr. C. H. Brock should act for him as Secretary of the U. P. A. S. I. and Director of the Labour Department, with the same powers to operate on Banking Accounts.

2. LABOUR DEPARTMENT.—The Committee passed the following resolution :—

> "That the Labour Department shall refuse to give any assistance as regards maistries and coolies known to the Department to be already under advance at the time they were engaged by the person asking for such assistance, either by the service of warrants or in any other way."

The Committee resolved further :—

> "That all Superintendents of the Labour Department shall draw the attention of the Executive Committee, through the Director, to all cases of irregularity in the working of private Agencies which come to their knowledge. The Executive Committee urge that no private labour agent be employed without the approval of the U. P. A. S. I. Labour Department."

3. LABOUR DISPUTES.—The Committee resolved that the Secretary cannot be expected to express opinions regarding inter-estate differences except under the instructions of the Executive Committee when they have been appealed to settle a question arising under the Labour Rules.

4. S. I. PLANTERS' CO-OPERATIVE SOCIETY.—Owing to the present depression in the Planting Industry the Committee resolved not to proceed with the original scheme. After considering a letter from Mr. A. S. Dandison, dated 17-1-21 proposing the immediate starting of a "Buying Agency," the Committee appointed the following as a Sub-Committee to go into the question and to formulate a Buying Agency scheme:—Messrs. H. L. Pinches, A. S. Dandison, and C. H. Brock.

5. GRANTS OF LAND TO DEMOBILIZED PLANTER SOLDIERS.—The Secretary was instructed to write to the Government of Madras, in continuation of the former correspondence, asking that grants of land be made to Demobilized Planter Soldiers, who, at the time of joining up, were by profession Planters of Southern India. The grants to be asked for were to be 100 acres in extent for each applicant for planting purposes with cash advances on the lines laid down in Mr. W. Egerton's scheme.

6. RUBBER RESTRICTION CONTROL COMMITTEE.—The Committee instructed the Secretary to ask District Associations to collect such statistics as are required by the Rubber Growers' Association, and to forward them to the U. P. A. S. I. Further, they appointed the following to form a Committee to adjudicate in the event of disputes, etc.—Messrs. J. R. Vincent, E. Lord, and E. H. Halliley.

7. INTER-DISTRICT SPORTS.—The Committee appointed Messrs. Vincent, Eaton and Brock as a Committee to attend to all the routine work in connection with the Inter-District Sports, such as drawing, making arrangements for matches, etc., and decided that all other matters should be dealt with by the Executive Committee.

8. S. I. P. BENEVOLENT FUND.—The Secretary gave the Meeting a *resume* of the work of the Fund. Since the 31st March last year, the total amount of the subscriptions received amounted to Rs. 6,303-6-1, showing an excess of expenditure over receipts of Rs. 3,237-8-1. He informed the meeting that he was issuing, with the revised rules, a special appeal for further support to the Fund.

9. GENERAL MYCOLOGIST STATION.—The Secretary was instructed to write to the Director of Agriculture, and to inform him that there were three sites suitable for the General Mycologist Station in the Anamallais, and to ask him to select one of them.

(Signed) C. H. BROCK,
Asst. Secretary.

INDIAN TEA ASSOCIATION.

ABSTRACT OF PROCEEDINGS OF A MEETING OF THE GENERAL COMMITTEE, HELD AT CALCUTTA, ON MONDAY, 31ST JANUARY, 1921.

CORRESPONDENCE WITH THE INDIAN TEA ASSOCIATION (LONDON). —Letters, dated respectively 30th December, 1920 and 6th January, 1921, from the Indian Tea Association (London), which had been circulated, were now to be recorded. The principal subjects dealt with in them were:—

(*a*) *Proposed restriction of the* 1921 *crop.*—In the letter of 30th December, it was stated that the London Association were still awaiting information from the Ceylon Association in London as to the support obtained in Ceylon to the proposed restriction scheme. It was understood that advices on the subject had been received from Ceylon, but that as these were not sufficiently clear, a further reference had had to be made for fuller particulars. This position was confirmed in the London letter of 6th January.

The Committee now considered several questions which had arisen in connection with the reference they made to members of the Association in circular No. 77, dated 10th December, 1920. In some cases members, in returning the forms attached to that circular, and in expressing their willingness to restrict, had deleted the clause in the form undertaking to hand over any surplus crop to the Indian Tea Cess Committee for consumption in India. On reconsideration of the whole matter, the Committee were inclined to think that, in the event of the scheme going through, it would be expedient to delete this part of the arrangement altogether, as the result of giving effect to it might be to prejudice the local market, while it did not appear likely that the Cess Committee would be able to deal with such teas.

Another question dealt with related to hail loss, allowance having been made in some returns for the amount of crop thus lost in previous years; this was not of course in accordance with the understanding, but the Committee agreed that the point might meantime be left over until the general question was settled one way or the other.

The Committee noted a letter, dated 26th January, from a member relating to a garden whose average yield had worked out at 4·6 mds. per acre, or 0·1 md. per acre more than the maximum to which restriction would not apply. The member had asked that special consideration should be given to this and other similar cases, but the Committee had replied that, as the allowances to be made had already been defined, it was not possible to do anything. In the letter now before the Committee, the member stated that in the circumstances it was regretted that the particular concern could not agree to restrict. The letter was to be recorded.

(*b*) *Regulation of Sales.*—It was stated, in the letter of 6th January, that this matter had again been under consideration, and that, on the information before them, the London Committee had recommended importers to print, for each of the weekly sales in the weeks commencing 17th, 24th and 31st January, not more than one-thirty-eighth part of the unsold balance of their estimated total crops after the sale for the week commencing 10th January; and, further, that any private sales effected during that period should be deducted from the quantity to be sold in public auction.

THE INDIAN EXPORT DUTY ON TEA.—It was mentioned in the proceedings of 4th January that the Committee had cabled to the London Association that they were agitating for the repeal of this duty, and suggesting that representations should be made to the India Office on the subject. The London Committee had forwarded, with their letter of 6th January, copy of a letter of the same date addressed by them to the Secretary of State for India. The Committee noted the terms of this letter with interest; a copy is printed for information as an appendix to these proceedings.

Letters of 21st January from the Darjeeling Planters' Association, and of 24th January from the Assam Branch, were to be circulated to the Committee. It was noted, from the latter letter, that the Assam Branch had adopted the following resolution on the subject:—

> That this extraordinary general meeting of the Assam Branch, Indian Tea Association, are unanimously of opinion that an urgent representation should be made to the Government of India for the immediate abolition of the export duty on tea. Its imposition was made during the war, and at a period when the condition of the tea industry caused little anxiety. The Local Government in October last stated:—"It is anticipated that, while the more prosperous gardens will be able to retain their labour force at its existing strength throughout the present crisis and to pay them a living wage *out of accumulated capital*, it will be impossible for the less prosperous gardens to do so." It follows, therefore, that any duty retained under these conditions in effect actually falls directly on the labour employed in the industry's production. Under these circumstances, and in the present serious crisis, it is submitted the retention of the duty cannot on any reasonable grounds whatsoever be justified, and should, therefore, be immediately abolished.

APPENDIX

To the Proceedings of the Meeting of the General Committee, on 31st January, 1921.

Copy of letter, dated 6th January, 1921, addressed by the Indian Tea Association, London, to the Secretary of State for India.

By direction of the General Committee of the above Association, I have the honour to address you on the subject of the duty of 1 Rupee 8 Annas on each 100 lbs. of tea exported from India.

2. This duty was imposed in 1916, when the Government of India were considering the ways and means to produce additional revenue to meet war-time expenditure. At the time of its imposition strong protests were made by the Indian Tea Association, Calcutta, and by my Committee, and attention was drawn to the unsoundness of an export duty on an article not a monopoly of the country of production.

3. During the recent visit to Assam of His Excellency the Viceroy, he consented to receive a deputation of tea planters from the Assam and Surma Valley Branches of the Indian Tea Association with the object of hearing their views on the very serious position of the industry, and His Excellency undertook to have further enquiries made into the matter. The Controller of the Currency and the Director-General of Commercial Intelligence were deputed to confer with the Committee of the Indian Tea Association, Calcutta, and a meeting was held on the 23rd November last, when a discussion took place regarding the general position of the Indian tea industry and the question of finance. My Committee have since been advised that the Indian Tea Association, Calcutta, and the Branch Associations, have made representations to the Government of India asking for the repeal of the present export duty, and my Committee are desirous of strongly supporting the action taken in India.

4. My Committee particularly wish to draw attention to the depressed state of the tea market, and to the low range of prices ruling for all varieties except the higher grades. It is no exaggeration to say that, for fully three-fourths of the tea now being sold at the weekly auctions, the prices realised show a loss to producers of pence per lb. This is largely due to the absence of the demand for Russia, and to the accumulation of large stocks in the London Bonded Warehouses. When the duty was originally imposed in 1916, the average price of Indian Tea in Calcutta public auctions was As. 8 per lb., whilst at the sale of the 30th November last in Calcutta—the last sale for which particulars are available—the average price had fallen to As. 5/3, and the commoner teas had fallen to As. 1/9 per lb. The tax on teas selling at this rate is, therefore, almost 15%, and such a tax on a commodity which is not nearly realising the cost of production is an intolerable burden.

5. To meet the state of over-production from which the industry is now suffering, a policy of restricting output is to be put into operation both in India and Ceylon, but it will take time before this can become effective to such an extent as to raise the prices to a paying level for producers. Unless some assistance, therefore, is rendered by Government to the industry in the severe financial crisis through which it is passing, there is every likelihood of gardens—especially in the districts of Cachar and Sylhet—having to close. My Committee petition, on behalf of the industry, for the removal of the export duty, as being one of the ways in which Government can assist, and it is earnestly hoped that favourable consideration will be given to the request made.

LETTERS TO THE EDITOR.

[*The Planters' Chronicle is not responsible for the opinions of its Correspondents.*]

Inter-District Sports.

Sir,—It was arranged that, at the time of holding the meeting of the West Coast Planters' Association in Calicut on January 15th, 1921, the Association should investigate its talent in the way of sports, and the Calicut members of the Malabar Club kindly agreed to play us at Cricket, Tennis and Golf, with the following results:—

TENNIS.

CALICUT.		W. C. P. A.	
Messrs. Hitchcock & Bruce	beat	Messrs. Browne & Middleton	6-3, 6-4.
Do. Hansen & G. H. B. Jackson	beat	Do. G. Jackson & Grieve	6-0, 6-0.
Do. Crombie & Thomas	beat	Do. Eaton & Bayzand	6-3, 7-5.

GOLF.

CALICUT.		W. C. P. A.	
Messrs. Langley & Thomas	lost to	Messrs. C. Jackson & Bayzand	2 & 1.
Do. Bruce & Biles	beat	Do. Poyser & Hadwen	3 & 3.

CRICKET.

W. C. P. A. won by 38 runs. Scores:—

CALICUT.	W. C. P. A.
97.	135.

The result being that events were halved. We would like to express our gratitude to the members of the Calicut team for their hospitality, and now we have commenced this sportive effort we hope that it may become an annual affair. Also that it may be but the forerunner of other similar contests against brother associations.

Yours faithfully, C. JACKSON (Capt.)

Rubber Restrictions.

Dear Sir,—I notice that Mr. Eaton, in his letter in your issue of the 5th instant says that Rubber is selling at 1s. 2d. Might I suggest that the quantity sold at this price is very small, and in no way affects the slump in the market? Does Mr. Eaton suggest that the Restriction should be removed because some lucky person has managed to dispose of a few pounds at 1s. 2d, or, is he just pointing out the fact that Rubber is being sold at that price? He certainly seems to have overlooked the large stocks of unsold stuff at home. If he could tell me that this stock is in any way diminishing I would be very pleased, as the only information I can get is to the contrary. Would it not be possible, Mr. Editor, to get some idea of the weekly or monthly sales? The fact that to-day's price is one shilling is apt to be very misleading, as it may have only been for a few chests for a special purpose.

Yours faithfully,
C. P.

9-2-21.

Rubber Restriction.

Dear Sir,—I have read with much interest the letters appearing from time to time in the *Chronicle* under the above heading, and now that, in your leader of the 5th instant, you invite Planters to "take pen in hand" and air their views on the subject I venture to do so, and to give my humble opinion for what it is worth.

To me, it is astonishing to read of the number of planters who appear to cling to the theory that it is better to go on producing Rubber so long as it just pays expenses, with the possibility of a small margin of profit, than to shut down *in toto* for a year. For, however long buyers and manufacturers find that they can get Rubber at 9*d*. to a 1s. per pound, for just so long will they give us these prices and no more, and we are only encouraging them to maintain these prices by selling our rubber at these absurd rates.

To my mind, a time has come when it is not so much a case of restriction as it is a question of taking as much rubber as possible off the market by any means possible, thus reducing stocks and automatically forcing up prices. Personally, I think it far better to run Estates for a year, working as economically as possible, on the reserves built upon previous profits, without any income, than to go on leading a hand to mouth existence indefinitely, as certain planters proposed doing with only a penny or two profit just "to keep things going."

At one time a great deal was preached about "co-operation," "unity is strength," &c., it is, therefore, somewhat surprising that, when these attributes are required to safe-guard and maintain our interests that we should read of planters trying to find loopholes to avoid restriction or closing down on various pleas, such as poor yields, short tapping seasons, heavily advanced labour, &c., &c. Drastic diseases require drastic remedies, and no doubt some few Estates will go to the wall through these drastic remedies, but it is better that a few should suffer than for the whole industry to remain stagnant.

I am by no means a pessimist, as I feel convinced that for those Estates that come through the ordeal successfully there are bright times in store for them, and it is our business to get those bright times in the shortest possible time, and to do this sacrifices must be made and hard times faced.

Yours faithfully,
(Signed) R. G. de R. NORMAN.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" Coffee.

(BY CABLE.)

LONDON, DATED 18TH FEBRUARY, 1921.

114s. per cwt. Market Nominal.

INTER-DISTRICT SPORTS.

In our first article on this subject a month ago we forecasted the formation of a Committee to control the Inter-District Tennis Tournament, and it will be seen from the U. P. A. S I. Secretary's report No. 7, published last week, that Messrs. Eaton, Vincent and Brock, all of the U. P. A. S. I. Staff have been asked to form the Committee. They will attend to all routine work such as drawing, making arrangements for matches, etc., and all other matters will be dealt with by the Executive Committee. The latest date at which entries could be made was originally fixed as 28th February, but we understand that the Committee has extended this date by one week, to allow those still outstanding to give the matter further consideration. Entries have been received from eight teams, viz., the U. P. A. S. I., Shevaroys, Anamalais, Nilgiris, High Range, Peermade, West Coast and Mundakayam. If no further entries are received, this means the Shevaroys will be the only team competing in Group "C," and, if such is the case the Committee will no doubt consider the possibility of grouping that district with the Anamalais, Nilgiris and the U. P. A. S. I. team in Group "B." This would make 4 teams in each of the 2 groups "A" and "B," and would be an ideal arrangement.

We trust that those Districts who have not yet come in, or whose Associations have left the matter to individuals, will after all raise a team to take part in this tournament. The latest date for entries is Monday, March 7th. The draw will take place one day next week, and will be published with full details in our issue of March 12th.

SHEVAROY PLANTERS' ASSOCIATION.

Proceedings of a Committee Meeting, held at the Victoria Rooms, Yercaud, on Thursday, 17th February, at 2 p. m.

PRESENT :—Messrs. S. M. Hight, Rev. Father Capelle, V. L. T. Drapes, C. Rahm, W. I. A. Lechler, C. D. Ryle, and H. S. Dickins.

Read letter from Assistant Secretary, *re.* Incorporation (Procedure). Four of the original promoters who signed Memorandum and Articles were owners, two were authorised Agents. Mr. C. D. Ryle agreed to sign in place of a Member who was not authorised.

INTER-DISTRICT SPORTS (Tennis).—It was decided to send in a Team, and the following were selected :—

Messrs. H. S. Dickins, C. D. Ryle, V. L. T. Drapes, W. I. A. Lechler. (Three out of this number would visit centre for Group "C." One man was included in case of some one not being fit).

Entrance Fee Rs. 100 was not to be taken out of Association funds, a subscription list was to be circulated amongst members for this amount, the Team were to pay their own expenses.

FINANCE.—The Honorary Secretary pointed out that, considering the large surplus balance of funds carried forward, subscriptions for 1921-22 could be reduced 3 annas per acre (inclusive) from Rs. 1-9-0 per acre 1920-1921 (inclusive) to Rs. 1-6-0.

Messrs. R. A. Gilby and C. Studer were invited to examine accounts of the Association.

PROPOSED AERIAL CABLE PROJECT.—The Honorary Secretary introduced Mons. E. Sice to the Committee, who laid his scheme before them, pointed out facilities and cheapness over existing mode of transport. He was requested to visit Planters and obtain statistics of tonnage up and down ghauts, the subjects would be brought up at General Meeting; Mons. Sice was invited, and kindly consented to attend.

ECHANKADU GREEN HILLS BRIDLE PATH ROAD.—The Hon. Secretary was requested to bring up the subject at the District Board Meeting on 26-2-21, and ask that the 5 furlongs abandoned be repaired, and maintenance grant for the full length of the road be obtained. Maintenance for the diversion to meet Yercaud-Craigmore Cart Road was promised by a Member. This road, leading to the Rifle range, would be constantly used by Members of the Auxiliary Force.

Read letter from the Collector of Salem *re.* proposed temporary opening of Arrack Shop in Yercaud from 1-4-21. It was decided to again approach Government, and point out the undesirability of their action in foisting this shop on the people, despite the strong protest that had been sent in.

The Meeting concluded with a vote of thanks to the Chair.

(Signed) H. S. DICKINS,
Hony. Secretary and Chairman.

MARKET REPORT.

We have been favoured with the following report from Messrs. Leslie & Anderson, dated 27th January, 1921 :—

Coffee.

There is little news to give you, the market continues dull, but there is little fine quality being offered. We hear full prices are being paid for Fine Central Americans, so hope the Home trade will pay up for the first arrivals of good East India Coffee.

The improvement in the continental exchanges mentioned last week has continued, resulting in a sharp rise in the value of the franc. We cannot say that we can see any alteration in the economic situation to justify this rapid rise, which is no doubt due in part to speculation, and in part to hopes of results of the Conference now being held in Paris.

Pepper.

The market presents a firm tone, the demand being principally from America, while c. f. i. prices for forward shipment from the Far East continue considerably above the spot value here.

Tea.

With larger catalogues for the auctions this week, the market has continued wonderfully steady, only the Common Leaf grades showing slightly easier values.

Rubber.

The market has been dull during the past week, a declining tendency in prices which shows a fall of 2¼d. to 2¾d. per lb. in Ribbed Smoked Sheet which now stands at a discount of 2½d. to 3d. on Crepe. We quote Standard Smoked Sheet 9¾d. per lb. London stocks now total nearly 55,000 tons,

THE ANTI-HOOKWORM CAMPAIGN.

We have received the following from the Publicity Bureau :—

Wynaad-Nilgiris Tea District.

I. INTRODUCTION.

Work among the coolies of the tea districts brought forth different features, conditions, and results. Here, we studied about 2,300 Indian coolies gathered from diverse parts of the Presidency, and representing many castes and classes of people. On one estate no less than seven different languages were spoken by the various groups of Indians. All ages and both sexes were well represented.

Conditions of labour differ here from those of Ceylon, Malay States, Fiji, and other parts where Indian labour is employed. Here the Indian cooly, as a rule, does not remain continuously upon the estate where he works. He insists on the privilege of visiting his " country " for from two to four months each year. The coolies of a certain estate may possibly return to that estate after the visit to their "country," or they may go to some other estate, or possibly they may give up estate work and not return to the tea district. There is no depending upon them. There is a constant movement or migration of the cooly population. This, as you may readily see, is highly disadvantageous from our viewpoint. Coolies rendered hookworm-free on the estate are liable to reinfection during their months of absence; the constant admission of coolies to a controlled estate would necessitate constant control measures, and would furthermore make soil pollution more liable.

II. INFECTION INCIDENCE.

Of the coolies examined, a great number were Tamils from Coimbatore district, which is located in the very dry section of the Presidency. The infection incidence among these was 83 per cent. The infection rate among the coolies from the wet districts of Malabar and South Kanara was 100 per cent.

III. PHYSICAL CONDITION OF THE COOLIES.

Contrary to the findings at the Cannanore Central Jail, the estate coolies present a very large percentage of moderate to severely infected cases as determined by clinical manifestations, and hemoglobin estimations. The chalk-white tongues, the bleached conjunctivæ, the swollen foot and lower limbs, the puffy faces, the well-marked dyspnoeas, the great work-fatigue, were common and very frequently observed signs.

IV. RESULTS OF TREATMENT.

Owing to the greatly lowered physical condition of the coolies, together with the depressing effects of the most severe monsoon when in progress, it was found that the coolies could not withstand the standardized dosage of thymol. Disturbing symptoms became common, and in order not to jeopardize the work the dosage was reduced 25 to 50 per cent.

A course of three treatments not less than a week apart was given. The cure rate after three treatments was 78 per cent. Among the lightly infected Tamil coolies the cure rate was much higher.

CRICKET.

COCHIN CLUB VS. MUNDAKAYAM PLANTERS.

This annual fixture, which except for being in abeyance during the war has been played regularly since 1911, took place in Cochin on Saturday the 12th instant when the visitors were, for the first time on record, able to bring down a full team.

Winning the toss, Bailey decided to bat first and with Jourdain went in himself to face the bowling of Miller and James. Both players started steadily, but unfortunately after about 10 minutes play Jourdain met with a nasty accident, mishitting a ball which bumped into his face. This necessitated his retiring from the match altogether, but we are glad to hear that the damage did not prove as serious as was originally thought.

Bailey was now joined by Hill, and the latter settled down to good steady all round cricket. At 32 Bailey was easily caught in the slips by Shore, and Hake took his place at the wicket with Hill. These players gave the visitors a lot of trouble, and carried the score up to 139 before lunch.

After lunch, which was taken in the Cochin Club, Hill gave a very enterprising display of all round hitting, and retired after compiling a most useful score of 102. In the meantime, Hake had been clean bowled by a good ball from James. The remainder of the side were easily disposed of with the exception of Feltham, who scored 5 boundaries in his score of 24 runs. The innings closed for a total of 257.

For the Planters, Shore sent in James & Miller to oppose the bowling of Hake and Stalker. James was at the wicket, nearly 1¼ hours for his 14 runs, whilst Miller compiled the top score for his side in quick time, which included one 6. It was a curious coincidence that the total on the board was 29, and the last-man-out's score was also 29, showing that neither his companion at the wicket nor Extra had compiled anything during Miller's innings. Once these two were separated the remainder of the side caused little trouble with the exception of H. P. MacPherson, whose 15 was of considerable value to his side. The Planters were all out for 91, in time for a late tea interval.

A large number of spectators were present about tea time, which was kindly organised for the Sports Club by Mrs. Pitcairn.

After tea the planters went in for another whack, and against the home sides "reserve" bowlers compiled a score of 105 for 4 wickets.

COCHIN.

SCORES—

Bailey	c. Shore b. Miller	19
Jourdain	retired hurt	1
Hill	retired	102
Hake	b. James	69
Feltham	b. Moulton	24
Godfrey	b, MacPherson, H. B.	9
Stalker	b. MacPherson, H. B.	9
Mobberley	c. McLean b. Mawer	1
Dance	not out	0
Fletcher	did not bat	0
Clarke	l. b. w. MacPherson, H. B.	0
Extras		23
		257

MUNDAKAYAM.

James	c. Feltham b. Bailey	14	b. Holloway	17
Miller	c. Fletcher b. Stalker	29	run out	7
Shore	b. Hake	9	b. Mobberley	21
Howson	b. Feltham	8	c. Mobberley b. Clarke	34
McLean	b. Feltham	0	did not bat	
G. MacPherson	c. Stalker b. Bailey	3		
Mawer	c. Sub b. Feltham	0		
H. B. MacPherson	stumped & b Bailey	15	not out	17
Stanton	c. & b. Bailey	2	did not bat	
Hawkings	c. Feltham b. Bailey	0		
Moulton	not out	4		
Extras		7		9
		91		105

In the evening a most enjoyable dinner was held at the Club, when covers were laid for 46. After dinner more restful games were indulged in with the following results:—

SNOOKERS.

COCHIN.		MUNDAKAYAM.
Grob Pitcairn	beat	H. B. MacPherson G. MacPherson

2 games to nil.

RUSSIAN FLEAS.

MUNDAKAYAM.		COCHIN.
Mawer House	beat	Anderson. Feltham.

2 — 1.

BRIDGE.

COCHIN.		MUNDAKAYAM.
Armitage Strauss	lost to	Shore. Hawkins.
Rae Clarke	beat	Miller. MacLean.

On Sunday a small Tennis Tournament was arranged, and although the tennis was not of a very high standard some interesting games were seen, Cochin winning the match by 6 sets to nil. The following were the teams:—

TENNIS.

COCHIN.		MUNDAKAYAM.
Cooper Grob	beat. 6—2, 6—4.	Miller. MacLean.
Hake Feltham	beat. 6—2, 6—2.	Mawer. G. MacPherson.
Hill Burton	beat. 6—1, 6—4.	Shore. Moulton.

THE PLANTERS' ASSOCIATION OF CEYLON.

The 67th Annual General Meeting of the Ceylon Planters' Association was held on the 15th February at Kandy. The following are some extracts from the speech of the retiring Chairman, Mr. T. Y. Wright :—

CESSATION OF GOVERNMENT CONTROL.

Regarding Tea, the season commenced fairly well, but shortly afterwards, probably owing to very large stocks of undesirable tea being thrown on the market after Government control ceased, together with exchange fluctuations, and to the fact that a better class of Tea was required, prices fell to an alarming extent, and it seemed certain that, if these conditions continued, many estates would be unable to carry on.

Proprietors and superintendents at once took a proper view of the situation, and finer plucking became the order of the day. This is now taking effect, and naturally had a quicker effect on high-grown tea—the situation regarding these estates is at the present time satisfactory, but it is still somewhat critical for mid and low-country concerns, which, though turning out a fairly fine tea, are not getting corresponding prices.

In this connection I would like to call attention to the remarks of your Chairman in 1917. In his annual review he said :—" I trust the days of very coarse plucking will never return, as it did an immense amount of harm to the reputation of Ceylon tea, more especially in Australia, which it will take some time to live down." Anyone knowing the situation in Australia knows how true this statement was, and I can only reiterate those remarks and issue a caution to producers not to be tempted again into coarse plucking, even if it is temporarily profitable to do so ; the great thing is to produce a tea which Ceylon may be proud of.

RUBBER.

Regarding rubber, prices could not be considered good even during the first half of the year, and latterly have fallen to an unheard of level, which has at once caused the greatest economy to be exercised in the working of estates generally. This will undoubtedly be severely felt by everyone concerned, the proprietors, superintendents, staff, coolies and shareholders generally, and will also affect the revenue of the Colony, and everyone dependent on the rubber industry. Restriction of output was agreed upon during the latter part of the year, to continue until the end of 1921.

RECONSTITUTION OF THE P. A. OF CEYLON.

In September last it was decided that reforms should take place in the management of the Planters' Association, and the rules have been altered to some extent.

I am not going to weary you, gentlemen, by going over old ground again, but I would like to say that it appeared desirable to try and work together, and in accordance with our motto " unitas salus nostra," instead of, as would have been a certainty, allowing a separate body to be formed.

I haven't the slightest fear that the Superintendents' Committee, at which a good deal of criticism has been hurled, if it carries on in the same way as it has begun, and, if it chooses for its leader men of the stamp of its first Chairman, I say I have no fear (? but) that in time it will become the strongest pillar on which the constitution rests, and I hope I shall not live to regret that the change has taken place during the period I have had the honour of being your Chairman.

In this connection, I would like to see the One Day's Pay Fund paid up per month for at least five years.

If you really have your heart in this Association, I say, pay up and be able to carry on at all times.

UNEMPLOYMENT.

Unfortunately owing to the critical times we are passing through, there are many men out of billets. The number to-day, I understand, is 94. It is our duty to help these unfortunate men to the best of our ability. We are indeed thankful that such funds as the Planters' Benevolent Fund, the One Day's Pay Fund, the Comrades of the Great War, the Disabled Ceylon Men's Fund, the European Association, and the Returned Soldiers' Registration Committee exist, as they will be able to lessen the distress which has been caused. But, gentlemen, I really do think that Government might take advantage of the situation and push forward some public works such as Re-afforestation. No one could be more suitable for this work than planters, and there are also many coolies who are available. I do hope Government will take action immediately.

LABOUR.

Owing to the conditions existing, the number of coolies who have come over from India is the lowest for the last four years. The Labour Commissioner, in his very full and interesting report gives his reasons, and I hope all members will carefully study that report.

It was with the very greatest regret that the Coast Agency Committee had to recommend such drastic reductions in both staff and expenditure, and we deeply sympathise with those men whose services had to be dispensed with.

These reductions were the more unfortunate, as the Commission had only recently been brought up in strength and efficiency.

Even on the reduced expenditure it was scarcely possible for the estates to keep the Commission going, and the Ceylon Government rightly foresaw that it would be very inadvisable to allow the Commission to be dissolved, and we very much appreciate the action of Government in giving a subsidy towards the cost of the Commission. The first instalment of this subsidy was received this week. It will be remembered that, if the Labour Ordinance came in, the Government would have taken over the Commission altogether.

Mr. Graeme Sinclair has been elected temporary Chairman, pending a permanent Chairman being elected.

The following are extracts from the Report of the Ceylon Labour Commissioner:—

STATISTICS.

The total number of coolies despatched to Ceylon up to 30th November this year was 36,794. The figures for the same period during previous years were : 1916—93,305; 1917—40,294; 1918—37,213 ; 1919—98,357 .

RECRUITING.

Eighty-five per cent of the total number of coolies who proceeded to Ceylon during the year emigrated through this Commission.

CLASSIFICATION OF LABOUR.

The Districts from which the bulk of emigrants were recruited were as under :—

Trichinopoly	9,090
Tanjore	4,351
Salem	3,068
Madura	2,309
South Arcot	1,839
North Arcot	1,901
Chingleput	1,319
Tinnevelly	1,493

As in 1919, the old recruiting Districts, Trichinopoly, Tanjore and Salem take premier place. That Madura, which in 1919 was the last but one of the eight districts should take the fourth place is due perhaps to the unrest among its " Kallar " population, due to their being registered compulsorily under the Criminal Tribes Act. This, I think, is also borne out by the fact that of the largest emigrating castes, viz., Pariah, Vellala and Pallan, according to 1919, precedence ; this year the Vellalas, in which caste is included the sect of ' Kellars " take the lead, the figures being Vellala 10,420, Pariah 8,496, Pallan 4,063.

Very few estates accepted Malayalee labour, and the total number of this caste despatched by the Commission amounted to only 587. Canarese labour was even more shy, only 21 going to Ceylon.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

I have to acknowledge with pleasure the co-operation and assistance extended to this Commission by the Director of the United Planters' Association of South India Labour Department and his staff in settling cases where the interests of Ceylon and South India overlapped. During the year, at the invitation of the United Planters' Association of South India, I met their Executive Committee at Coimbatore, and we drew up an agreement for the mutual protection of our interests which was ratified by the Planters' Association of Ceylon and the United Planters' Association of South India.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore, 23rd February, 1921.

SECRETARY'S RRPORT NO. 8.

1. S. I. P. BENEVOLENT FUND.—An error was made in Item 8 of last week's report, in duplicating, which was not detected before the copies were circulated. The middle sentence should read :—" Since the 31st March last year the total amount of subscriptions received amounted to Rs. 3,065-14-0, but the expenditure amounted to Rs. 6,303-6-1, showing an excess of expenditure over receipts of Rs. 3,237-8-1."

2. SCIENTIFIC DEPARTMENT.—On 3rd July last the Secretary wrote to the Government of Madras asking for a proportionate refund from the amount of Rs. 10,000, which is paid by the Association to Government as a contribution towards the cost of the Scientific Department, as Government had not yet been able to engage a General Mycologist, which was provided for in the scheme of the re-organization of the Scientific Depart-

ment. The Government of Madras Development Department has passed the following order, No. Mis. 175, dated 31st January, 1921:—

"The scheme for the development of the Planting Industries of Southern India, given effect to from 1st April, 1919, in G. O. No. 415, Revenue Special, dated 7th March, 1919, contemplates the employment of a Mycologist for the investigation of diseases affecting Coffee, Tea and Rubber. It has not been found possible, hitherto, to recruit an officer, and, pending his recruitment, the Government consider that no contribution on account of the officer or his establishment be recovered from the seven contributors to the scheme. The Accountant-General is requested to adjust the recoveries already effected against the future payments to be made by the contributors, the amount to be adjusted each quarter being a fourth of the amounts shown below:—

	Rs.
United Planters' Association	3,152
Mysore Durbar	539
Cochin Durbar	315
Travancore Durbar	945
Coorg Administration	739

(By Order of the Government, Ministry of Development.)"

3. INDIAN TEA CESS.—The Tea Cess Act Amendment Bill was passed by the Legislative Assembly on 19th February, 1921, without discussion.

4. FOOD CONTROLLER'S TEA CONTRACT.—In the report of the Executive Committee to the Annual Meeting, 1920, it was notified that the Indian Tea Association had demanded that the point, as to at what rate of exchange the extra farthing per lb. should be paid to Companies controlled in India, should be submitted to arbitration. The Food Controller suggested that the matter might be settled between the legal advisors to the Ministry and the solicitors of the Indian Tea Association in London.

The following is an extract from a circular of the Indian Tea Association to its members, dated 18th February, 1921:—

"No settlement has been arrived at as yet, but in view of the present position of exchange, the Committee have decided to recommend members to accept, under protest, payment on the basis proposed by the Food Controller, namely ¼d. per lb. in sterling in London. The difference, at the present rate of exchange, between payment on this basis and payment on the basis for which the Association have held out, is small, and the arrangement now suggested would settle the matter at once. Bills in this connection should be made out and submitted in accordance with the instructions contained in the Tea Commissioner's circular No. 5070/5120 T. C., dated 18th/20th February, 1920. Attached to the circular was a copy of the form to be submitted to the Tea Commissioner in duplicate. These forms, when filled in, should be sent to the Actg. Tea Commissioner, Block B-3, Clive Buildings, Calcutta for verification, and the claim will be forwarded by him, after verification, to the Ministry of Food, who will pay the amount due to the London Agents specified in the form."

5. ANNUAL GENERAL MEETING, 1921.—The Executive Committee have fixed the date of the Annual General Meeting for Monday, 22nd August next, and following days.

(Signed) C. H. BROCK,
Asst. Secretary.

SOME NOTES ON DAILY AND ALTERNATE DAY TAPPING, THINNING OUT AND CONSUMPTION OF BARK CONTROL.

The following interesting notes, by Mr. Roger Bannerman, are reprinted from Vol. 3, No. 1 of *The Bulletin.*

DAILY AND ALTERNATE DAY TAPPING,

The opinion is often expressed that alternate day tapping is cheaper in bark consumption than daily, and also that a change from daily to alternate day tapping will give less crop.

The first opinion is only correct if the length of cut is the same, or nearly the same. One cut on a quarter alternate day uses about 60 to 70 per cent. of the bark used by the same cut daily—alternate day tapping uses more than half the bark consumed by daily (on the same section) because the cut has 24 hours more in which to dry, so that such thin tapping as is possible with daily is not possible with alternate day tapping. One cut on half the trees alternate day consumes practically the same bark as one cut on a third daily, and considerably more than one cut on a quarter daily—it is, therefore, in some ways not quite correct to say that alternate day tapping saves bark—the bark consumption in both alternate and daily tapping depends on the breadth of the section tapped.

Now, as to the second point, namely, crop—many estates, having used their bark too quickly, change from daily to alternate day tapping, keeping the same length of cut, and they record heavy reductions in crop—this can hardly be put down to alternate day tapping, in that the bulk of the shortage of crop, it not all, comes from the fact that less bark is used—if you come back from one cut on a quarter daily to one cut on a quarter alternate days, you use 30 to 40 per cent. less bark and get about the same percentage less crop, the result would be much the same if daily tapping was continued, but the quarter cut reduced to, say, a cut on one-sixth of the tree. To my mind, the same mistake has been made in practically all the experiments, whether carried out by scientific officers or by estates, because in the case of the alternate day tapping the bark is not removed at the same rate as in daily tapping.

A half cut daily is compared with a half cut alternate days, and so on. Naturally the daily tapping wins, on crop.

The following constitutes to my mind a perfectly fair test between the two systems: —

ALTERNATE DAY RENEWAL.—One cut on half the tree; angle of cut, say, 30 degrees, 8 years.

DAILY RENEWAL.—One cut on a third of the tree; angle of cut, say, 30 degrees, 8 years.

With the same quality of tapping in both cases, both systems would start at the same height up the tree— the total amount of bark below this height would be removed in the same time, *i.e.*, 8 years—a comparison between these two systems or between any systems which removes bark at the *same rate* is the only fair one.

Early last year I had some correspondence with the R. G. A. officials in Malaya on this point. They admitted the justice of my arguments, and informed me that a further experiment on the lines I have mentioned above, namely, one cut on the alternate days and one cut on the third daily was just being started.

I have had only one experiment on these lines carried out, because, generally, I am adverse to experiments being undertaken on estates, in that supervision is not all it should be, and it is quite possible to arrive at false conclusions. I give the results for what they are worth.

	No. of Acres.	Year Planted.	Trees per Acre.	Percentage Trees in Tapping.	Crop per acre in lbs. 1918.	1919.	(four months.) 1920.
Daily ...	138	1911	78	85%	211	312	122
Alternate day ...	121	1911	79	85%	184	364	138

I am mostly concerned now with yields in Java and the Lampong District of Sumatra, and will confine figures to these localities. I give some yields that have been obtained in recent years with alternate day tapping allowing for 6 *to* 8 *years' renewal*—the system is one cut on half the tree:—

No. of Acres.	Year Planted.	Trees per Acre.	Percentage Trees in Tapping.	Crop per Acre in lbs. 1915.	1916.	1917.	1918.	1919.
42	1910/11	65	99%	—	69	225	277	352
58	1911	76	100%	—	—	223	252	394
121	1907	66	80%	194	349	381	445	455
224	1910/11	92	100%	34	137	251	315	371
117	1911	84	85%	—	—	220	308	397

In the above cases 6 to 8 years, generally the latter, is allowed for bark renewal. Moreover the trees are, to my mind, well thinned, and, as far as I can see yields should improve considerably, and then be maintained for many years.

I cannot admit as fair comparison rubber that is on daily tapping, which carries too many trees to the acre, and from which the original bark to a considerable height has been removed in 3 or 4 years—rubber in such a condition cannot keep up the yield, and I maintain that the areas from which I have quoted the yields, etc., above, can and will keep up the yield, and in most of the cases improve upon it.

It can be gathered from the above that I do not consider that daily tapping gives better results as regards crop than alternate day tapping; anyway, I have never seen it proved, and I take care to keep up-to-date with what is going on in S. India, Ceylon, The Straits, Sumatra, and Java. In my opinion there is very little difference in the yields obtained by either daily or alternate day tapping, while every other point is much in favour of the alternate day tapping. I enumerate some of these points below :—

1. Alternate day tapping is cheaper than daily tapping if crops are anywhere near the same, because—

   (a) Half the number of tappers are required.

   (b) Half the number of cups (if aluminium, which are brought in every day and used for the other areas the next day), knives, buckets, etc.

   (c) Less housing accommodation is required for the smaller labour force, and in Sumatra smaller recruiting charges, medical fees, and at present less loss on rice—this latter is a serious point just now.

2. From a disease point of view the alternative system is preferable because—

   (a) BROWN BAST.—The percentage of trees affected is smaller on estates on the alternative day system than where daily tapping is in vogue, *vide* R. G. A. first Ceylon Report, 1920. This is also borne out by my own experience, and I have to hand detailed Brown Bast statements from some thirty rubber estates, on the majority of which the data have been well kept for nearly two years.

Scientific opinion is also much in favour of alternate day tapping from the point of view of the health of the trees.

(b) Diseases which affect the tapped surface, such as Stripe Canker, Patch Canker, or Bark Rot. These diseases seem likely to be always with us, and in the wet season need the most careful attention, often as much as three or four times a week. With daily tapping the trees can only be handled after the cups have been collected, or are being collected, say, round about ten a.m., leaving a very short time, if rains set in about midday, for the treatment. Moreover the rain often comes so soon after the treatment that the greater part of the fungicide is washed away. With alternate day tapping, the trees in the areas not in tapping that day can be thoroughly well treated by a separate gang from 6 a.m. till 12 noon. In the wet season, when naturally stripe canker is most prolific, this, to my mind, is an important consideration.

3. Control by manager, assistants, or tapping assistants.

Only half the acreage in bearing is in tapping each day, so that either the staff can be reduced, or better still, supervision doubled.

4. Bark renewal.

Renewal from alternate day tapping is, in my opinion, much quicker and better than from daily tapping. I consider that six years' renewal from alternate day tapping is equal to eight years or more from daily tapping.

I may mention that I have given alternate day tapping no credit for this when discussing yields earlier in these notes.

As a point of interest, I may mention that I have recently started an experiment with tapping once in the three days, on a small area from which the yields on alternate day tapping on one cut on half the tree are known for some years past—the length of cut remains in this case the same, so that, going up the tree to the same height in each case, we shall get ten years' renewal instead of eight as at present (bark with every third day tapping being used up on account of drying—proportionately more rapidly than by alternate day tapping), or possibly we consider it advisable to limit the three day tapping to eight years' renewal, and so not have to go so high up the tree as with the alternate day tapping.

From my experience so far, which in regard to tapping dates from 1914, I am strongly in favour of alternate day tapping. I consider that the majority of the estates in the Middle East will change over to this system during the next few years, and I also think that every third day tapping is deserving of attention.

At present I am in favour of bringing new areas into tapping on one cut on half the tree alternate day tapping, starting on the first section at, say, 22 in., allowing two years for tapping and 4 in. for the spout; the other side is brought in at 40 in., allowing for four years, and an additional two years are obtained above the first tapped section, making eight years in all, bark consumption averaging $\frac{3}{4}$ in. per month,

On trees which have been in tapping some years, and on which bark consumption has been too rapid, it is more difficult to decide on a system, If the lower bark is hopelessly immature, then tapping must be done higher up. Alternatively, I think I should risk tapping, and there *is* a distinct risk when tapping on the renewed bark four to five years old. The system to be used should allow for at least *eight years* for the next renewal.

If tapping has been on thirds, I would keep to thirds, since it is difficult and confusing to put thirds on the top of a half or quarter cut. If on quarters I should keep, anyway for the time being, to a quarter daily.

If daily tapping on new areas is laid down, then I would advocate one-third daily, since I consider one-quarter daily too light, and half the tree daily too heavy tapping. In this case also, eight years' renewal to be allowed for.

THINNING OUT.

The statements often made that an estate has yielded so much per tree, and that an estate carries in total so many trees in bearing, have, I think, done much to retard necessary thinning out. If an estate has, say, 100,000 trees in tapping, and yields 4 lbs. per tree, then it is simple to calculate *theoretically* that if some 20,000 trees are thinned out the crop would fall 80,000 lbs. It is better, in my opinion, to calculate crops per bouw or per acre, and take care to see that the land is not carrying more trees than have room for development. The loss of crop from trees cut out is made up for by the increase of crop from the trees that remain much more quickly than many people imagine.

To put it in common language, the necessity for thinning out arises because any food a tree absorbs from the soil through its roots has to be made available in the leaves before it can be used, so that it is important that nothing should interfere with the development of the crowns of the trees; almost equally important is the fact that the feeding roots of the trees should have ample soil from which to draw their requirements.

The number of trees an estate can usefully carry per acre, and the rate of thinning, depends on a variety of conditions, some of which are mentioned below:—

1. The growth of the rubber dependent on—
    - (a) Soil, original quality, and whether washed or not.
    - (b) Whether cultivation is liberal or not.
    - (c) Lie of land.
    - (d) Rainfall.
    - (e) Wind, etc.

2. Disease and damage.
    - (a) Whether root disease is prevalent.
    - (b) Whether trees are liable to damage by animals or bark diseases, etc.

The growth of rubber in Java under normal conditions is considerably slower than that in the Straits or in the East Coast Residency of Sumatra. Moreover, large areas of rubber, especially in East Java, have, in their youth, been interplanted with coffee, which has, in many cases, seriously impeded growth.

Under reasonably normal conditions I favour about the following number of trees per acre for Java:—

6 to 7 years old	...	...	95 to 105 trees.
8 to 10 years old	...	...	75 to 95 trees.
10 to 12 years old	...	...	65 to 75 trees.

Thinning, if possible, should of course be done gradually, say, at something like five to ten trees per acre per annum, then there will be no check in the steady increase of crop year by year, and no sudden shock, which is often noticed as affecting the remaining trees for some time after heavy thinning. Even after heavy thinning the trees left standing quickly pick up, and make full use of the additional space allowed them both in the air and below ground.

The results of sound and up-to-date thinning are well-grown trees, well developed in every way with good bark, good bark renewal, and, moreover, far less liability to disease than in crowded areas.

The results of late thinning or not thinning at all are badly formed trees with thin bark, more liability to disease, and last but not least, poor bark renewal.

Some remarks on thinning may not be out of place.

Time.—All things considered it is best, I think, to get the trees to be thinned taken out just before, or at wintering, so that the remaining trees can have full use of the additional space when they put on new growth after wintering.

Method of Selection.—Bad trees, whether ill-grown, damaged, or incurably diseased, naturally come out first, then, of course, the worst yielders, though in some cases when damage to a heavy extent is being done in crowded areas it may possibly, or just possibly, pay not to wait for yield selection.

If further selection is required, then the bark on the 15 worst yielders per acre can be examined under the microscope, the number of latex cells checked, and the final five to ten trees to come out chosen.

In thinning, as in most work connected with planting, each estate and each field must be treated on its merits, and there is no hard and fast rule as to how many trees there should stand in any one area.

Bark Control.

Whatever the tapping system, the proper control of bark consumption is of such vital importance that I consider it of interest to detail here the system which has been enforced on estates with which I have had anything to do, and which I endeavour to introduce on estates when I first visit them.

1. The month and the year when a section is brought into tapping is clearly marked in figures above the middle of the section—these date marks are kept permanently.
2. At the end of each month a short horizontal line is put on the other side of the down channel at the point which the tapping has reached at the end of the month. At the end of each quarter this monthly line is made double the length, and painted red.
3. Guide lines are very lightly cut at the proper angle below the tapping cut, to make sure that the cut is maintained at the proper angle. If the cut becomes steeper, bark consumption is increased, even if the same number of cuts are made per inch, seeing that the inch in question lies at right angles to the tapping cut, and now down the channel, or put in other language, as the slope increases so does the length of the section of bark shaved off.

The date above the section is maintained even after more dates are added below it when the section or part of it is tapped for the second or third time.

The system on paper may seem a little complicated, but in practice it is not. It has been used now on every tree in bearing for some four years past, on some 20,000 acres.

With this system any extravagance in bark consumption can be checked within a month. Moreover the visiting agent can tell at a glance how tapping is going, and not the least important point is that the history of each section is recorded permanently on the tree. I suppose, when in full working order, the system costs about ¼ ct. per lb., which is nothing compared with the capital saved in bark.

That some such system is essential is proved by my own experience. Many a manager has told me in perfect good faith, when asked what his bark consumption was, that with daily tapping he was removing about an inch a month, and in the cases of alternate well below an inch. He would probably have arrived at such figures by measuring one or two special trees and examining bark shavings. On many estates, when the above system was in working order months after attention had been strongly drawn to the necessity for economy in bark, it was found that alternate day tapping averaged 1 in. to 1½ ins., and daily 1½ ins. to 2 ins. per month, and in some cases up to 3 ins. The staff had absolutely no means of knowing what the consumption was, since the same sections on various trees in one field would come in at different times, say, 30 to 50 per cent. of the trees being tappable when tapping started and more trees being brought in from time to time.

LETTERS TO THE EDITOR.

[*The Planters' Chronicle is not responsible for the opinions of its Correspondents.*]

The Auxiliary Force.

Sir,—Your Correspondent, Anti N. C. O. asks some very pertinent questions in his letter published in your issue of the 12th instant.

What is being done with regard to the Auxiliary Force? Perhaps the following story, which is authenticated, may throw some light on the lack of interest in the above force.

A certain ex-Officer of my acquaintance applied for enrolment, and after a lengthy delay, received a communication from the Brigade to the effect that his application could not be considered unless he could produce a certificate from his local I. D. F. Commander. (who, by the way is one of the heroes who kept the home fires burning so effectively during the war) stating that he was a suitable person to be enrolled in the Aux. Force.

If this is the sort of encouragement the Army gives to Ex-Army men, it is hardly surprising that there is some lack of interest.

Some of us who have a very lively recollection of the treatment meted out to us when we first joined the I. A. R. O. are by no means anxious to sample anything similar. Nor, are we anxious to serve under young men, who, though very worthy folk in their way, successfully evaded conscription, and took all the fat jobs in our absence, then cheered us up with harrowing stories of the hardships undergone by them in the I. D. F.

May I suggest that a few Service Dinners, in planting Districts. or an annual Planters' Service dinner, would do much to rouse interest in the Auxiliary Force, at any rate among ex-soldiers, and would help to cement the good feeling that exists among those who know what it is to have had a taste of the

P. B. I.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" Coffee.

(BY CABLE.)

LONDON, DATED 25TH FEBRUARY, 1921.

110s. per cwt. Market irregular.

COFFEE PRICES.

Our Weekly Cable.

Messrs. Rowe White & Company, writing us under date 10th February, say:—

> "With reference to the cable advice of value of "A" size East Indian Coffee, which we send you each week, we trust that you understand that the recent quotations refer to old crop, as no new season's crop has yet come forward for sale. Good East Indian Coffee is wanted, as the market is bare of supplies of fine grades, and consequently first shipments of the new crop are expected to make very good prices, though we doubt if values will be maintained when the bulk of the crop comes forward. Some fine Costa Rica new crop realized about 150s. for the bold,

> and up to about 200s. for small fine samples of Peaberry, and it is possible that really fine Mysore may do as well if it comes forward early."

By the same Mail we have some interesting information in the *Produce Markets Review* which says:—

> "A small lot of new crop Costa Rica suitable for home trade was offered in Tuesday's sale and realized high prices—Peaberry from 186s. to 205s. 6d., and Flats up to 160s.
>
> "East Indians of good quality are short at the moment, but as a ship with new crop has arrived in the Thames the position should shortly be relieved.
>
> "New crop Nairobis and Ugandas have arrived, and the quality is distinctly good. The former growth is attracting more interest for café trade and blending purposes."

This bears out the remarks of our London friends. Our object in calling attention to these two reports is to throw further light as far as possible on the conflicting reports of prices ruling in the Produce markets directly affecting the Planters of S. India.

Rubber.

We have already drawn attention to the difference in price of Rubber as actually obtaining and that cabled by Reuter. This was a month or more ago, since when we are glad to note a *rapprochement* between the two, and the cables now give a fairer idea of prices obtaining. Even so, it is as well to consider cabled prices of Rubber as being the top price reached on day of sale. On January 27th, for instance, the fluctuations was from 1s. 0¾d. for Crepe to 1s. 3¾d., and for Ribbed smoked sheet 0s. 10d. to 1s. 2d. Early in February (in No. 6 of the "Planters' Chronicle,") we wrote that Rubber was quoted in London at 9½d., and by Reuter's cable 1s. 2d. A glance at the figures above makes this quite clear. The quotation of 9½d. was for a whole crop smoked sheet and scrap crepe, Reuter apparently cables top price of smoked sheet as being a fair average of the days' sales.

While we are on this subject we may as well carry on with the latest news received of the Rubber Market. "Macson," writing in the "India Rubber Journal," under date 3rd February, says:—

> "Prices have been very steady, neither yielding to the weight of adverse circumstances nor allowing a run upon a false scent, as happened last month. The market has not derived much comfort from the Dunlop report, and is awaiting the fuller information likely to be forthcoming at the meeting on the 11th instant. C. i. f. New York is a weak point at 10d., and spot New York 17 cents. Singapore has been active with support from local speculators, sheets on the spot realising 10d. Upon the whole a quietly steady feeling prevails."

Tea.

There is not much object in writing about Tea prices, as the Madras Dailies publish frequent cables giving W. H. Thompson's latest figures

For the benefit of those who are interested in Calcutta prices, we take the following from the "Calcutta Commercial Gazette" and "Investor's Guide":

> "The local tea market is again showing a weaker tendency. Prices are irregular, even at the low rates prevailing. Sellers are trying to make a stand, and a good deal of tea offered has been withdrawn, as they were not willing to let them go at the prices bid. Fair common leaf tea can be purchased at two annas per lb., and the average price of all teas stands between six and six and a half annas. The total amount sold in Calcutta this season is about 54,000,000 lbs., Bombay, for Indian use and export to the Persian Gulf, has been the largest purchaser, some 16,500,000 lbs. having gone to those markets; about 30 per cent of all tea sold in Calcutta. But business with other countries outside the United Kingdom has fallen off, totalling only 36,000,000 lbs. (including Bombay and Persia). Exports to the United Kingdom are very short compared with last season, 192,500,000 lbs. against 278,250,000 lbs., but this is partly due to much tea being held back, though the crop is also deficient. The weakness in the local tea market is a reflection from the London market, where prices have been falling during February. But the London average is about 1s. 2d. at auction, or at present exchange 14 annas against 6½ annas in Calcutta. Of course all the best tea goes to London, where the best qualities fetch five shillings and over per lb. Ordinary teas, however, are quoted at low prices, fair common at 4½d. which, after paying freight and charges is no better than 2 annas at Calcutta. These low prices must continue while stocks of unsold tea are so heavy. At the end of January they were 224,000,000 lbs. in the United Kingdom, which is double the quantity required for the ordinary purposes of the trade. Calcutta is suffering from want of foreign demand, which is small except in Bombay and Persia."

INDIAN TEA ASSOCIATION.

ABSTRACT OF PROCEEDINGS OF A MEETING OF THE GENERAL COMMITTEE, HELD AT CALCUTTA ON 15TH FEBRUARY, 1921.

CORRESPONDENCE WITH THE INDIAN TEA ASSOCIATION (LONDON).—

Letters, dated respectively 13th, 20th and 27th January, 1921, from the Indian Tea Association (London) were considered, and were to be recorded. The principal subjects dealt with in them were:—

(a) *Ocean Freight Agreement*: *Tea Rate.*—In the proceedings of 18th January last there was quoted a cablegram of 11th idem received from the London Association enquiring the reason for the increase in tea freight for December, 1920, and January, 1921 in view of the general fall in freight; and there was also printed the General Committee's reply, explaining that the high rates for these months were due to forward bookings of rough cargo, and that the reduction would not be felt until these forward bookings had been shipped. In their letter of 13th January confirming the cablegram referred to, the London Association stated that

> there was a feeling in London that, in view of the fall in freights generally, the tea rate was being raised to an unwarranted figure; and they commented that, if the Conference were carrying rough cargo to outports in the United Kingdom and to continental ports at the same rate as, or at a lower rate than, for London, there would be good grounds for making a strong protest against the maintenance of the tea rate to London at so high a figure.

The Committee discussed the question generally. Their understanding was that the intention, when the agreement was framed, was to provide for the tea rate being based on the current market rate for rough cargo. They quite realised that, according to the system provided for in the agreement, the tea rate was ascertained by taking the average of the actual freight paid for rough cargo, as extracted by the auditors from the steamer manifests in each month; but they believed it to be the case that this system was devised as a satisfactory method of giving effect to the intention mentioned above. In actual practice, however, it seemed that the system did not give tea shippers the benefit of the ruling market rates, but on the contrary penalised them, because of forward bookings of cargo at high rates. It was understood that, in the case of shipments to Dundee, two of the lines had agreed to give shippers of rough cargo the benefit of the current market rates, but as regards London there was no such arrangement, so that tea did not benefit by the reduced rate given in the case of Dundee. The Committee had already cabled to the London Association asking them to take up the question with the Conference there, and they now decided to address the Calcutta Conference regarding it. A similar representation was to be made to the Clan Line with regard to shipments from Chittagong.

NOTE :—Since the meeting, the Liners Conference have advised the receipt of a cable from the London Conference to the effect that the tea rate for February has been reduced to £4-17-6, less 5/- discount, and that for March to £3-15-0 less 5/- discount, the rate as ascertained by the agreement being then reverted to. The agreement rate for February was £6-8-9.

(b) *Regulation of shipments of tea from India.*—In the proceedings of 18th January, a telegram of 14th idem on this subject received from the London Association was quoted. It recommended that the restriction of shipments should be continued at 8% during February, and stated that the warehouses would not be able to accommodate more, and only so much, if shipments from other countries were restricted. When confirming this telegram in their letter of 20th January, the London Association stated that, at the end of December, 1920, the bonded warehouses were stored to their fullest capacity, and that unless shippers were to run the risk of having penal rates imposed on them, the prudent course was for shipments to be restricted to a figure which would be counter-balanced by deliveries. And in their letter of 27th January it was stated that the Secretary of the Tea Allocation Committee had intimated that, owing to the arrival of four Clan steamers within a week of each other, carrying over 100,000 packages, it might be necessary to resort to dead storage, there being little space available even for this purpose.

The Committee noted the position as explained in these letters.

(c) *Scientific Department—Bacteriologist.*—In the letter of 20th January it was mentioned that the Chairman of the London Association had

had an interview with Mr. Carpenter, the Chief Scientific Officer, when the question of engaging a Bacteriologist for the Department was discussed. The following is an extract from the letter :—

Mr. Carpenter stated that such an officer would be of considerable value to the Department, but, owing to the want of accommodation at Tocklai, and also to there being no laboratory available in which to carry out experiments, (the present laboratories being fully utilised by the present officers), Mr. Carpenter was of opinion that a Bacteriologist could not be engaged at present.

Some members of this Association have urged that more progress should be made in the investigation of the manufacture of tea, with a view to improving the quality, but it is obvious that no special research in this direction can be done until the necessary equipment and accommodation are provided. It may, however, be a suitable time, in view of labour being available, to get the work of providing accommodation and equipment pushed forward as much as possible, and I am directed to ask you to be good enough to bring this point to the notice of the Scientific Department Sub-Committee.

Mr. Carpenter could, if necessary, get a suitable officer, but of course no progress can be made in this direction until there is a place to house him, and a place for him to work in. Until such time, therefore, as your Committee advise that the necessary accommodation and equipment are ready, no further steps will be taken by the Committee here to engage a new officer.

I am informed by a member of the Committee that an Engineer in business on his own account at Tocklai is leaving the district, and it is understood his bungalow is to be sold. It is believed this bungalow is close to the Tocklai Experimental Station, and it might solve the difficulty as regards accommodation if the Scientific Department purchased this bungalow. Perhaps you will kindly make enquiries into the matter.

The Committee had replied in the following terms when writing to the London Association on 10th February :—

The Committee have read with interest your remarks under this heading. So far as bungalows are concerned, the complete programme to date has not contemplated a special bungalow for a bacteriologist, but if a single man were appointed he could in case of necessity be accommodated in one of the existing bungalows ; this, however, could only be a temporary arrangement ; and additional bungalow accommodation will have to be provided in the near future. The Sub-Committee's idea is that this additional accommodation should be at Borbhetta, and that Mr. Wiles should occupy the bungalow that would be built there, the house which he will meantime occupy at Tocklai being then available, for the bacteriologist. They had before them at a recent meeting the offer of the Engineer to whom you refer to sell them his bungalow ; this bungalow is in the neighbourhood of Tocklai, and for the reason I have indicated the Sub-Committee decided that it would not be expedient to purchase it at present.

Apart from these considerations, however, extensions of the laboratory which have been under consideration for some time will require to be proceeded with before laboratory accommodation for a bacteriologist will be available. It has, however, been considered more important to provide an adequate entomological laboratory first.

The Chairman now explained that the Scientific Department Sub-Committee were going into the question of additional accommodation with reference to the financial position.

THE INDIAN EXPORT DUTY ON TEA.—A letter, dated 9th February had been received from the Government of Assam acknowledging the receipt of a letter from the General Committee forwarding copies of resolutions passed by some of the District Associations calling for the immediate repeal of the export duty. The Government of Assam stated that they had already addressed the Government of India on the subject, and awaited that Government's decision.

A letter, dated 10th February, from the Secretary of the Surma Valley Branch, forwarded copy of the proceedings of a Special Genera Meeting of the Association, held on 31st January, when the following resolution was unanimously passed.

That, in view of the state of the tea industry in the Surma Valley, this meeting urges upon Government the paramount necessity for immediately withdrawing the export duty on tea. The critical position of Surma Valley gardens is apparent from the fall in tea prices in February, 1920.

The letter was to be recorded.

A telegram, dated 14th February had been received from the Secretary of the Assam Branch, stating that Srijut Debicharan Barua's resolution in the Imperial Legislative Assembly, urging the abolition of the tea duty would shortly come up for discussion, and asking that copies should be sent to him of the resolutions passed by the various Associations. In accordance with this request, there had been sent to him copies of the letters addressed by the Indian Tea Association (London) to the Secretary of State and by the General Committee to the Government of India, incorporating the resolutions passed by the Associations and Branches.

PROPOSED RESTRICTION OF THE 1921 CROP.—In connection with this subject, the following telegram, dated 4th February had been received from the Indian Tea Association (London) :—

Restriction of crop 1921 Assam interests do not agree to support scheme in its entirety. Majority of large agency houses adhere to scheme as framed but as 85 per cent. support not available reduction 1921 left to individual action. Committee endeavouring to ascertain reduction contemplated by members here with a view to modified arrangement.

To this message the General Committee replied as follows on 8th February :—

Restriction crop committee regret original scheme fallen through. Telegraph particulars modified arrangement as soon as possible.

Copies of these telegrams were issued for information to members in Circular No. 10, dated 10th February. There did not meantime appear to be anything further to be done in connection with the proposal, and receipt of particulars regarding the modified scheme referred to by the London Association was to be awaited.

THE AUSTRALIAN TEA TRADE.—With a letter dated 31st January, the Calcutta Tea Traders' Association forwarded copy of a letter received by them from one of their members, suggesting that the Government of India might be asked to approach the Government of Australia on the subject of a preferential duty on British-grown teas. Reference was made, in the letter mentioned, to the large increase in the exports of tea from Java to Australia, and it was stated that the Ceylon Chamber of Commerce had asked the Government of Ceylon to make representations to the Commonwealth Government on the subject.

The Committee were in full agreement with the proposals made. Recent statistics proved that Java tea had recently shown a tendency to displace British-grown teas in Australia, and the Committee believed there was every likelihood that the Australian Government would, if matters were represented to them, see their way to introducing a preferential duty in favour of British-grown teas, similar to that in existence at home. For a time, indeed, the Commonwealth Government had prohibited the import of non-British-grown teas, and it was decided to address the Government of India, Department of Commerce, on the subject, pointing out that Java already possessed a real advantage over British-grown teas in the matter of proximity to the Australian market, and correspondingly lower freights.

THE PRINCIPLES OF AGRICULTURE.

HUMUS.

This is the sixth of a highly important series of articles by one of the best known rubber Mycologists, published in *The Planter* :—

It is a distinguishing characteristic of soils that they contain a certain proportion of organic matter. This proportion varies in different soils, but, generally speaking, the fertility of a soil largely depends upon the proportion of organic matter present. No, soil if left uncultivated, remains very long without a vegetation. The plants composing this vegetation, if unmolested, eventually die after they have lived out their allotted spans of life and have borne seed, and fresh plants arise from these seeds to take their places. The residues of these dead plants become, through the agency of earthworms and other insects, intermingled with the mineral pericles of the soil. This initial material, consisting of the residues of the roots, stems and leaves of plants remains on or near the surface of the soil until it is carried down mechanically by some agency, such as earthworms.

Various animals help on the breaking up of decaying leaves and other vegetable matter, either by burrowing in the soil and loosening it, so that oxygen is more rapidly supplied to bacteria and fungi, at the same time making it easier for fungus threads and roots to spread in the soil, or, by living on the organic matter, and passing it through their bodies. It was Darwin who first demonstrated the powerful influence which earthworms have in the formation of soils (Darwin, C. Earthworms and Vegetable Mould, London, 1881.) He said :—"The plough is one of the most ancient and most valuable of man's inventions, but long before he existed the land was regularly ploughed by earthworms. It may be doubted whether there are many other animals which have played so important a part in the history of the world as have these lowly organised creatures." All are familiar with the "casts" formed by earthworms on the surface of the soil. Worms line their burrows with fragments of leaves, and feed on the decaying organic matter in the soil, which they swallow in great quantities, and eject in the form of casts. They live in their burrows during the day, and emerge at night for food; in very cold weather or dry weather they are inactive. It is estimated that about ten tons of earth in each acre of ground pass annually through the bodies of earthworms, in places where they are numerous. Worms help to expose fresh soil at the surface, and to sift and mix the soil; they cover up seeds lying on the surface, thus keeping the seed moist; their burrows help the roots to penetrate the ground. Their most important work, however, is that of passing through their bodies vegetable matter, which they convert into "vegetable mould" (humus) and bring to the surface.

The presence of this "humus" in the soil greatly influences the amount of plant food available for the use of plants. The earliest vegetation that ever existed, which grew upon the disintegrated mineral matter formed by the weathering of the original rocks, must obviously have obtained its food from the mineral particles themselves. This food, the calcium and potassium salts, phosphates, etc., must have been absorbed by the plants in the form of a solution. In the case of those mineral salts which were soluble in water, or in water in which carbonic acid gas from the air had been dissolved, the roots of earliest plants could take their choice. The plants, however, were not dependent entirely on salts, which were ready dissolved in the water which came in contact with their roots, but they were able to dissolve by means of their root-hairs other compounds from the solid mineral matter. We know that the root-hairs excrete an acid by which minute quantities of salts are brought into solution from the rocks, and can thus be absorbed by the plants. Calcium phosphate, for example, is only soluble to a small extent in water, yet by this excretion of an acid by the roots it is rendered absorbable by the plants. This solvent action of the root-hairs can be easily proved by growing plants in a thin layer of earth covering a slab of polished marble. After some time, an exact print of the course of the roots will be found on the smooth surface of the marble; which has become corroded wherever the hairs of the roots have been in contact with it. When these earliest plants died, their residue added a complex organic material to the soil which, in turn, became a source of food for succeeding generations of vegetation.

It is a known scientific fact that there is no loss of energy in the world. We may change one form of energy into another form, e.g., we take heat and produce motion, from which in turn we can produce light. Similarly, the energy which a plant in its growth has derived from the sunlight, and which it has stored up in its different parts as the force which holds together the various atoms of the different elements to form the complex chemical substances which constitute the plant, is not lost when the plant dies. If we burn that plant, we break down the complex substances and the force from the sunlight which previously held the atoms together, to form the complex substances is liberated in the form of heat. When the parts of a dead plant are mingled with the soil and they undergo decay, *i. e.*, a breaking up of the complex chemical substances which had been formed by the energy derived from the sunlight into simpler compounds occurs, energy is liberated in the form of heat, and by the time they have completely decayed as much heat has been given out as if they had been burnt in a fire.

The mass of mineral particles which formed the "soil" in which the earliest plants grew contained a store of energy, but it was not easily available whereas the energy contained by the mixture of mineral matter and the residues of plants is readily available. The addition of these plant residues thus causes a great change in the soil; life within it is now possible, and a multitudinous population of living creatures arise, all drawing their energy from that brought into the soil by the plant material. These living creatures, which are generally microscopic in size, live directly or indirectly upon the decaying vegetable matter (thus obtaining their energy from it), which becomes broken down and converted into simpler substances fit for the nutrition of the then existing plants.

The addition of this organic matter to the soil produces great changes in its physical condition. Indeed the effects are so great that, where from 15-20% of organic matter is present in the soil, all other factors vanish, and thus sands, loams and clays become alike, possessing similar physical properties. As an example of this can be quoted the famous Red River Prairie soil of Manitoba, which in many places is identical in mineral composition with certain of the poor infertile Wealden soils, but the presence of 26% of organic matter in the former completely masks the effects of the clay and fine silt, and renders it one of the most fertile areas of the world.

Organic matter in the soil can be classified under four headings, viz., (1) Material which is yet undecomposed and still possesses a definite cellstructure.

(2) Material which is partly decomposed.

(3) Products of its decomposition which are soluble.

(4) Plant and animal matter which is undecomposable.

As mentioned in the last chapter, the undecomposed organic material in the soil acts as a reserve supply for No. (2), and, further, it has a certain mechanical effect upon the soil in keeping it "open" and so facilitating drainage and aeration. It will be obvious to the reader that this effect will be beneficial in the case of clays and "heavy" soils while, with sand and very "light" soils, where the power of retaining water is already very slight, it will be harmful.

The second of the above is that which is commonly known as humus, and which really consists of all the non-volatile products resulting from the action of fungi, bacteria, etc. upon the remains of the plants. Compared with the undecomposed plant residues it has marked differences, of which the following six are the principal:—

(1) It gives a dark brown or black colour to the soil.

(2) It has the power of taking up from solutions certain substances, such as ammonia, potassium, or phosphoric acid.

(3) It causes the soil to puff up, and thus causes an increase in the amount of pore space in the soil. Thus the tilth of the soil is improved, together with its general mechanical condition. It is possible that this puffing up of the soil may go too far; this is sometimes found to be the case in old gardens which have been heavily manured for a long time.

(4) The water-holding capacity of the soil is increased by the presence of "humus." It has been observed that the variation in the water content of a soil closely follows the variation in the amount of organic matter pre-

sent. Thus every effort should be made to increase the amount of organic matter contained in soils which have to experience an annual or seasonal period of drought.

(5) "Humus" swells when wetted. In this point it is similar to peat, which shews this property to a marked degree.

(6) Though this mixture of substances which form "humus" are essentially in a transitional stage, yet they have a certain degree of permanency, and only disappear slowly from the soil. They disappear more quickly from chalky and sandy soils than from clays and loams.

From what has been written in this and previous chapters, it will be obvious that, since "Humus" possesses these various properties, the fertility of soils is greatly increased by its presence. The slightest acquaintance with agricultural methods will have shewn that, in most schemes of cultivation, great care is taken to maintain the amount of organic matter contained in the soil at a high percentage by the addition of farm-yard manure, the ploughing in of green manures, by the addition of guano, nightsoil, or other animal manures. The matter is considered to be of such importance that the removal of leaves and other decomposable matter from the state forests in France, Belgium, Germany, etc., is strictly prohibited.

The usual method of determining the percentage of organic matter in a soil is by burning a weighed sample, and then finding the loss of weight. This does not give quite a correct result, for some of the inorganic mineral matter contained in the soil undergoes chemical changes when heated, and thus cause a difference in the weight of the sample.

Humus, therefore, is capable of supplying plants with mineral plant-food, such as potash and phosphates, which it brings to the soil from the plant residues from which it was formed, but it also serves as a source of nitrogen. The nitrogen present in humus, however, is in the form of some organic compound, in which form it cannot be used by the higher plants, but must be converted into nitric acid. This action in the soil, by which the nitrogenous organic matter is changed into a form in which it can be used by the higher plants, is brought about by micro-organisms (bacteria), and is commonly known as "Nitrification." Fungi, moulds and yeasts act upon the various organic substances in the soil, using part at least of these substances to build up their own structures, and when the latter decay the material left is more susceptible to the action of the nitrifying bacteria than were the original organic substances. The mycelium of the moulds and other fungi break up dead leaves and other vegetable matter in the soil, and it appears that moulds have a large share in converting the nitrogen of the proteids into ammonia, especially in manure heaps, humus (leaf-mould) and very peaty soils.

Various bacteria have the power of converting proteids into ammonia; but the further changes, which are termed "Nitrification," take place in two distinct steps, and are due to the activity of two separate and distinct micro-organisms which live in the soil. In the first place the ammonia combines with the carbon dioxide which has been formed by the oxidation of the carbon in the plant residues, and forms ammonium carbonate. This ammonium carbonate is rapidly converted by bacteria, known as "Nitrosomonas," into nitrite, and this in turn by another set of bacteria, the "Nitrobacter," is changed into nitrate. These changes proceed so rapidly in the soil that only traces of ammonia or nitrite are ever found in normal arable soils. From this it can be therefore concluded that the formation of the nitrates from the nitrites must take place the fastest of three reactions, the production of the nitrites is slower, while the formation of ammonia is the slowest of all. Indeed it is this last reaction which sets the limit to the speed at which the other can take place. The measure of the speed at which nitrates are formed in a soil does not therefore measure the rate of nitrification, but the rate at which ammonia is produced.

At one time it was thought that this change of ammonia to nitrates in the soil was a purely chemical procedure, and it was not until great advances had been made in bacteriology that it was definitely settled that decomposition and putrifaction were due to bacterial activities. Two German investigators, Schloesing and Mantz, were the first to bring the newly gained knowledge of these bacterial changes to bear upon agricultural problems, and in particular upon the changes which take place in the soil. In 1877 they studied the purification of sewage water by land filters. A continuous stream of sewage was allowed to trickle down a column of sand and limestone so slowly that it took eight days to pass. For the first twenty days the ammonia in the sewage was unaffected, and then it began to be converted into nitrate; finally all the ammonia was converted into nitrates during its passage through the column, and nitrates alone were found in the issuing liquid. If the matter was a purely chemical one, argued the investigators, why had they to wait twenty days for the nitrification to commence! They at once considered the possibility of the change being due to bacteria, and found that the process could be entirely stopped by adding a little chloroform vapour to the column. The action should be started again after the chloroform had been removed, by adding a little turbid extract of dry soil. Nitrification was therefore shewn to be due to micro-organisms. It was later still that Warington, by a very careful series of experiments shewed that nitrification took place in two stages, and was due to two distinct organisms. In 1890, Winogradsky succeeded in isolating these different bacteria, and thus the evidence was completed.

Serious loss of nitrates often occurs in manure heaps that have been kept too long, and also in soils to which too much farmyard manure has been added. This loss is due to a process termed "denitrification," which is the work of another kind of bacteria, differing from the nitrifying kinds in acting only in the absence of oxygen.

CLEAN CLEARING.

By E. L. Shipman.

One of the two winning essays in the competition organised by the I. S. P. of Malaya. The other was published in our issue of 15th January, 1921.

Is Clean-Clearing Commercially Sound?

By the method usually adopted in Malaya in the past, virgin jungle was felled, and, after a short time, burned, jungle-stumps and unburned timber being left to decay *in situ*. Some of these jungle stumps may take from eight to ten years for the process. Within the last few years, however, it has come to be recognised that clean-clearing, though costly, has its advantages, and on many new areas now being opened up clean-clearing is in progress.

The capital value of a rubber estate is, of course, largely in its trees, and care must be taken that these are not lost through disease or other causes. By far the greatest number of trees on estates are yearly lost through diseases due to parasitic fungi and white ants (termes gestroi), and it can be shown that uncleared timber is mainly responsible for the spread of these. The following extracts from Petch's "Physiology and Diseases of Hevea Braziliensis" throw some light on diseases due to fungi:

"The decay of these (jungle) stumps is brought about by the agency of fungi, the spores of which alight upon the exposed wood, and germinate there." "All the root diseases of Hevea, tea and cocao which have been investigated with any approach to completeness have been found to originate on a neighbouring stump." "There is no known root disease of any of the plants mentioned which attacks the plant directly, i. e., by germination of spores upon the plant; they all require an external base of operations, and this they find in the dead wood of an adjacent stump. If there were no dead stumps, there would be no root diseases of Hevea."—So much for root-diseases.

As regards white ants. Few, if any, white ant nests are to be found in living Hevea trees, the method of attack being, as a rule, to run underground passages from the nest to the roots of the tree, and these passages may be traced back to the nest if the destruction of the latter is desired. In every case known to the writer, who has seen some hundreds of white ant nests burned out, the nest was either situated in a dead stump, or contained within it, probably as its base, a portion of decaying timber. Wood acted upon by fungi dissolves in time to powder, which provides an easily assimilable diet for white ants, probably particularly so for the young or new born termes. If the lying timber and stumps on an estate be examined, it will be probably be found that very little of it is free from traces of white ants.

It may be argued that, in the absence of jungle-timber fungi, the white ants would adopt the Hevea tree itself as host. This, however, is not borne out by facts, since it is well known that young, heavily-timbered estates are the greatest sufferers from these causes, while older estates, where, in the process of time or by burning, etc., much of the timber has been eradicated, are comparatively free from disease.

Suppose, after burning and clearing, there remain ten stumps per acre on an estate and five only of these, being affected with white ants or parasitic fungi, are responsible each for the death of one Hevea tree in eight years. It may be reckoned that the value of an eight-year old tree is at least $10 (the usual valuation is greater). We have, then, a loss of $50 per acre on the capital value of the estate. The above is a very conservative estimate.

Of the above five trees attacked by disease, suppose two of these to have suffered even had the land been clean-cleared. The capital value of trees then saved by clearing is, according to the above estimate, $30 per acre, which is at least nearly half the actual costs of clean-clearing the land, and the following advantages of clean areas remain:—

(1) Weeding is better, and weeding costs are lower. Weeds naturally grow in the interstices of logs, etc., lying about, and, being at times neglected through oversight or bad work, seed, and thus spread more weeds around them. In most estates the weeding rounds are regulated with a view to prevention of seeding. Again, the actual area to be traversed by the weeding cooly is naturally greater when timber is present, and, the task being somewhat more troublesome, the work done is usually not so good. In one estate where a heavily-timbered field was cleared and the timber burned there was a practically immediate reduction of weeding costs by nearly fifty per cent!

(2) Lining is easier, and planting more likely to be regular. In most uncleared estates it is not unusual to see trees planted out of line owing to the presence of stumps at the time of planting, and it is obvious that obstacles in the way of lining tend to make this work more difficult.

(3) Soil-aeration, and consequently growth and yield, is probably better. The soil under rotting timber is always damp and unproductive. The beneficent bacteria of the soil require light and air for their activities, and, even though the soil be rich in plant-food, this food is of little use to the tree unless previously acted upon by these bacteria.

(4) Cultivation, if desired, should be better and cheaper. In one estate, some two-year old trees were forked in a four-foot circle round their roots, at an average cost of $5 per acre. A great part of this cost was due to cutting out stumps and jungle roots, and had the land been originally clean cleared, the cost of forking these trees should not have exceeded $2 per acre.

As regards the costs of clean-clearing. In many cases the removal of firewood from the estate may be permitted, and a levy made on each cart-load taken away, or a lump sum charged each month for the privilege. The land may also be let out for food-supply crops, in these days of rice shortage, and in such cases it is usual to lend the land free of cost on condition of its being cleared and kept clear. The writer knows of one estate where all timber, including stumps, was cleared at a cost of $10 per acre. This was accomplished by letting out the land to Malays for planting paddy, and subsequently permitting the removal of firewood. In any case, the clear-clearing of land should not cost more than $75 per acre. One writer in the "India Rubber Journal" for November 1st, 1909, claimed that, in Sumatra, a jack worked by two Javanese was capable of grubbing from seventy to eighty roots, or small stumps, per day. Tractors might also, on flat land, be used to advantage both for hauling stumps, and for stacking timber previous to destruction or removal If either of those methods is adopted, the clearing costs should be lighter.

To sum up. The disadvantages of clean-clearing are : cost of the work, and, possibly, the removal of manure from the ground. The advantages are : reduction of pests and diseases ; better and cheaper weeding ; easier and more regular planting ; soil aeration, and better and cheaper cultivation.

Clean-clearing, therefore, is undoubtedly commercially sound.

"SUTUMA."

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore, 2nd March, 1921.

SECRETARY'S REPORT NO. 9.

1. SETTLEMENT OF RYOTS FROM INDIA IN CEYLON.—With reference to para on page 5 of the Executive Committee's Progress Report, dated 1st December, it is reported that some 108 families from Southern India were settled by the Salvation Army at Unnichehai in Ceylon, each family receiving 5 acres of paddy and 3 acres of dry land. Although the scheme at first promised well, since October the settlers have suffered so severely from malaria that it has been decided to repatriate the families brought over.

2. SHIPPING FREIGHTS.—Intimation has been received that freights from the West Coast to London on Tea and Rubber have been reduced to 80 shillings per Shipping Ton, less the usual rebate of 10 %.

3. EAST COAST RECRUITING.—Mr. FitzGerald, who has just come out from Home to take up this work, has left Headquarters to start recruiting. His first efforts will be restricted to recruiting a limited number of coolies which have (? been) especially indented for by a few Estates who

are bearing the full cost of the venture. He will also report to the Executive Committee as to future prospects. A meeting of those who are interested in this particular recruiting was held at Ootacamund on the 25th ulto., and among other things discussed the rate of Rice Issue on Estates.

4. RICE ISSUE ON ESTATES,—The meeting above referred to passed the following resolution.—

"That the Estate Issue price of Rice for East Coast Labour be fixed at 400 tolas per Rupee.

"That this price should be adopted as a universal Estate Issue rate, and that all District Associations be asked to adopt it, so as to prevent the cutting of Rice rates by Estates as a special inducement to obtain labour."

5. TEA RESTRICTION OF CROP, 1921.—The Indian Tea Association have received the following telegram from their London Office.—

"Restriction of Crop 1921 Assam interests do not agree to support scheme in its entirety. Majority of large Agency houses adhere to scheme as framed but as 85% support not available reduction 1921 left to individual action. Committee endeavouring to ascertain reduction contemplated by members here with a view to modified arrangement."

(Signed) C. H. BROCK,
Asst. Secretary.

NOTES AND NEWS.

(FROM VARIOUS SOURCES).

The Inter-District Tennis Tournament.

We are glad to be able to announce another entry—the Wynaad Planters' Association—making nine entries in all, sufficient to make an interesting tournament.

Foxy Coffee.

We are grateful to a correspondent for the information that "foxiness" in coffee is the result of over-ripeness. Our correspondent remembers, years ago, receiving a pamphlet to that effect from coffee curing works in London. Will "Foxy" please note.

Tea Companies' Shares.

Indian Tea Companies' shares have suffered a great diminution in value. The value of thirty representative tea companies, with a face value of £5,000,000, were quoted in 1919 at £12.500,000. These have now sunk by nearly 50 per cent., and are quoted at £6,500,000. It must be admitted, however, that the higher quotation was grossly inflated, as, previous to the war in 1914, the quotation value was £7,500,000.

Ceylon Tea.

The following amounts of Ceylon Tea have been exported *via* Talaimannar by rail to stations in S. India :—

	lbs.
Madura	439
Dhanushkodhi	300

These figures are taken from the "Ceylon Chamber of Commerce" Weekly Price Current, dated 31-1-21, 7-2-21 and 14-2-21.

A New Use for Rubber.

A Rangoon correspondent draws the attention of a contemporary to "the new use for rubber." He thinks that, in view of trouble experienced in getting Madrassis to complete a job in cane or wicker work when they have begun it, rubber might be employed in forming seats for chairs on the model of the door mats and carriage mats now made. "They would be cool, being perforated, and would last longer than any cane or wicker work."

The Indian Tea Cess Act.

A Bill to amend the Indian Tea Cess Act was passed without discussion in the Legislative Assembly on 19th inst. The amended Act provides for the levying of an export cess of eight annas per hundred pounds of tea. The proceeds of the cess, which has now been in force for many years, are utilised in advertising and publishing the sales of Indian tea in various countries. Of recent years the Committee appointed to administer the cess funds have expended nearly the whole amount in India, and have succeeded in spreading the use of tea among Indians. The war prevented any work being done in any other countries, but now that the field is clear the leaders of the tea industry feel that operations should be resumed in America and other countries. For this purpose it was considered desirable to raise a larger fund, and hence the Bill to increase the cess was introduced. The cess, at eight annas per cent. pounds, would provide about 17½ lakhs per year at the ordinary rate of tea exports, but it is probable that exports will be curtailed by about 20 per cent. this year, and the fund will be proportionately smaller. All the money thus provided is expended to the advantage of the tea industry in getting markets for the produce, and thus the tax is justified.

The General Depression.

The simultaneous lack of demand in five agricultural staples is rather a remarkable conjunction. Tea was the first in which weakness showed itself. A depression in rubber quickly followed. Rubber is not an important matter in North India, the latitude being too high for its proper growth, but in South India, where the climate is more tropical, it grows well. Considering that rubber is such an indispensable material in the arts, it appears strange it should be over-produced, but it is a symptom of manufacturing depression. The same applies to cotton. It might be thought, considering the universal demand for clothing, cotton could not be over-produced, but the price has fallen so low that the Egyptian Government is restricting the area to be sown, and there is to be a reduction of cotton growing in America also. To these must now be added jute which, though a monopoly of Bengal also appears to be over-produced. Demand is stagnant, and prices low, and it is generally expected that much less will be sown this season. With reference to rubber and cotton, the public do not seem to have got the benefit of low prices of the raw material, so much has been swallowed up in increased cost of manufacture.—(" Calcutta Commercial Gazette.")

Anent Low Rubber Prices.

A writer in the *India Rubber World* says :—Although rubber manufacture generally is not brisk, and some departments are on short time, it cannot be said that the manufacturers show signs of worry and anxiety. This condition seems to appertain more particularly to the directors of rubber plantation companies, who regard themselves as the victims of malign providence. Many of them can recall rubber at 12*s*. per pound, and they sadly refer to the good old times when two or three hundred per cent. dividends could be paid. Of course, in this matter of shilling-a-pound rubber all producing companies are not in the same position, and therefore some directors are more cheerful than others. This cheerfulness is largely limited to the companies which still have rubber to deliver at 2*s*. 6*d*. per pound for months ahead. To the suggestion that this may prove rather hard on the rubber manufacturers, when they have to compete with firms buying at present prices, the answer is that the manufacturers have had good earnings during the war, and are not objects for commiseration. Of course, the manufacturers might reply to the effect that many of the rubber companies have also had their good times in the past.

The Secretary, U. P. A. S. I.

Mr. Waddington's departure has again been delayed, and the latest information is that the "Herefordshire" will sail from Colombo on 13th April next.

Mr. A. H. Mead, Member of the Executive Committee, U. P. A. S. I., has gone to Colombo, from whence he expected sailing for home on 3rd March, by the "Derbyshire".

The Executive Committee.

The departure of Mr. Mead has caused a change in the executive Committee. Mr. E. Lord as member-in-waiting for Rubber became active Member, and Mr. J. R. Vincent was elected in his stead as member-in-waiting.

We understand, however, that Mr. Lord finds himself unable to accept active membership, but is willing to carry on as member-in-waiting. Presumably then, Mr. J. R. Vincent becomes active member for Rubber.

The Rubber Growers' Association.

These changes affect also the control of the R. G. A. (S. Indian Branch), which is further changed by the resignation of Mr. R. Lescher, from the Committee, on his departure for England. The position is, therefore, that Mr. J. R. Vincent, as Executive Committee member for Rubber, automatically becomes Chairman of the R. G. A. (S. Indian Branch.)

Mr. E. Lord remains a member of the Committee, on which there are now two vacancies to be filled.

LETTERS TO THE EDITOR.

[*The Planters' Chronicle is not responsible for the opinions of its Correspondents.*]

February 27th, 1921.

Foxy Coffee,

Dear Sir,—As nobody seems to have replied to "Foxy's" letter, published in your issue of 5th February, I give the following for what it is worth. I think that it has been clearly proved that "Foxy" coffee does not come from either picking ripe, or even over ripe fruit, but from allowing the pulped coffee to ferment with too many skins, as it is dye in the skins that discolours the bean and makes it "foxy."

The only way to prevent this is to wash off the bulk of the skins directly after pulping, or while the coffee is being pulped. If water is a consideration shut down the door of the pulping vat tight, and allow the water to accumulate while the coffee is being pulped, and then, after the pulping is over, spread the coffee evenly over the surface of the pulping vat and stir up well, so that all the skins come to the top, and then let the water go with a rush into the washing vat, this will carry the bulk of the skin to the door of the tail vat, and a little more washing will get rid of the rest.

Heap the parchment coffee as usual, and allow it to ferment for 36 hours from the time of pulping. "Foxy" may find that during the cold weather he will have difficulty in getting rid of the "bumpoo," *i.e.*, the saccharine matter that adheres to the parchment, but this will not make the coffee foxy, as there is no colouring matter in it.

Yours faithfully, (Signed) H. C.

(Note by Ed. P. C.—Another correspondent's opinion will be found in our "notes and news" page. The two are diametrically opposed on the question of over-ripeness.)

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" Coffee

(BY CABLE.)

LONDON, DATED 4TH MARCH, 1921.

108s. per cwt. New Crop.

LABOUR IN ASSAM

One of the writer's first articles in the Chronicle, written immediately after the reorganisation of the U. P. A. S. I., was published under this heading, and the course of time having again brought us the proceedings of the Chief Commissioner of Assam at which the Immigrant Labour Reports of the Deputy Commissioners of Labour Districts were read, we propose dealing again with the subject, so that comparison may be made with the years 1917-1918 and 1918-1919 in the light of present and past labour conditions in Southern India. In the past, there has always been some confusion in the minds of South Indian planters regarding 'Act' and 'Non Act' labourers.

This year, the number of existing contracts under the Emigration Act (now withdrawn,) has dwindled so much that practically none remain. The usual statement of their wages is left out. This makes our comparison easier, as Act XIII of 1859, under which we work largely in South India, is now practically universal in Assam, where it is said the Act continues to work satisfactorily. Naively enough the report says "Important amendments were made it in it during the year ...... amendments all in the interest of the workers." This refers of course to Act XII of 1920, with which we have sufficiently dealt in these pages.

Statistics,

We may first compare the actual statistics of immigration into the province.

In 1917-1918 the total strength of the labour force was 940,368. In 1918-1919 the strength of the labour force was 1,084,957—an increase of 144,589 coolies.

In the year under review (1919-1920) the total strength was 1,110,364, representing an increase of 25,407 over the previous year. This decrease in the percentage of increase is not commented upon, except to say that the exceptional circumstances which led to abnormal recruitment in 1918-1919 had this year ceased to exist.

The above figures show the actual number employed, and include tea garden labour, oil refineries, coal mines and certain saw mills. Labour employed on Railways is excluded. The actual immigration during the year amounted to 1,02,089 compared with 2,22,171 last year, but was none the less well up to average. Last year we commented on the mortality among immigrants, which was then abnormally high, 1,485 having died while in transit.

This year the number fell to 133, of which only 4 deaths were due to cholera, the latter disease appearing to have been entirely scotched by the free use of inoculation and other measures against it. This is worthy of record, and we call the attention of the Mundakayam Planters' Association to it in view of the proceedings of their annual General Meeting in January. 1920*.

Contracts and Wages.

The figures given below follow the usual practice, and show the average wages earned ' of the total number on the books' and ' of the average daily working strength.' Naturally, if the total number of coolies on an Estate's books are considered, the amount earned shows a reduction on the average daily earnings of the working strength. The manner in which they are arrived at is by taking the figures for September, 1919, and March, 1920, of the monthly cash wages, including "ticca" diet, rations, subsistence allowance, and bonus per head.

Earnings were slightly higher than last year. As in the past, many gardens supplied their coolies with rice at concessional rates. Very many gave them land (either free, or at a small rent) for growing paddy. To future reports (we quote the proceedings) will be appended a table showing to what extent coolies benefitted during the year by arrangements on the part of their employers which enabled them to buy rice at prices below the market rate.

The following are the average monthly earnings :—

		1917-1918			1918-1919			1919-1920		
		Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.
(1) Of the total number on the books.	Men ...	6	4	3	6	5	9	6	12	10
	Women ...	5	1	2	5	1	5	5	14	3
	Children ...	2	13	5	3	1	5	3	7	7
(2) Of the average daily working strength.	Men ...	7	15	9	8	6	0	8	15	9
	Women ...	6	10	2	7	3	5	7	13	3
	Children ...	4	0	2	4	4	8	4	10	2

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* P. C. Vol. XV. No. 5, 1920, Page 87.

The figures are of particular interest to us just now when the question of recruitment from the East Coast is under consideration. There has been considerable loose talk about coolies obtainable at four annas per day and so on, so that we can now come down to bed rock, and point out the fallacy of expecting labour at that figure when, from the same districts, coolies are going to Assam and admittedly earning up to Rs. 9 per month. This is an average of 6 annas per day for a month of 24 working days, a fair computation we believe, and is in line with the rate paid up till quite recently for labour in Southern India, and in fact is still being paid in many districts. The increase to seven annas is by no means general, although rapidly gaining ground, and there is no doubt that, if averages could be worked out in South India as is done with this immigrant labour in Assam, we should find that generally speaking South India is paying considerably more monthly than Assam is doing. At the same time it will be seen that rates in Assam have gone up by exactly Re. 1 per month since 1917-18, and presumably will continue to increase since (as the report says) "in spite of some increase in cash wages during 1919-1920, and in spite of indirect help to the cooly ...... it cannot be doubted that the cooly......has acutely felt the pinch of the general rise in price of necessities." It is not perhaps in our province to point the moral of all this, but planters who propose employing Ganjam labour, while retaining a majority of the old labour force, will no doubt carefully study the position when deciding on what rates to pay.

One word more—In Assam, during the year 1919-1920, Managers instituted 1,518 cases for non-fulfilment of agreements under Act XIII, including 177 cases pending from last year. The cases which were decided in favour of the complainants numbered 222 while 690 were decided against them. Only 22 coolies were sent to prison.

Proceedings of a Joint Meeting of the Bababudin, North Mysore and South Mysore Planters' Associations, held at the Kadur Club, Chikmagalur, on 7th February, 1921.

PRESENT.—C. H. Browne, W. L. Crawford, S. H. Dennis, H. H. English, R. G. Foster, E. W. Fowke, C. H. Godfrey, F. M. Hamilton, A. L. Hill, F. Hugonin, H. Kerr, N. G. B. Kirwan, W. H. Lincoln, E. M. Nixon, H. M. Northey, W. H. Reed, W. F. Scholfield, C. Sylk, S. J. Wilson, E. H. Young. Visitor—F. W. Winterbotham, Supdt., U. P. A. S. I. Labour Department, Mangalore.

Proposed by Mr. W. L. Crawford and seconded by Mr. S. H. Dennis, Mr. C. H. Browne was elected Chairman of the Meeting. Mr. A. L. Hill was appointed Secretary.

1. Co-operation of the three Associations with a view to protect their labour interests in South Kanara,

The Chairman said that, when the U. P. A. S. I. Labour Department was formed, there was no labour available in South Kanara beyond that advanced by planters in Mysore and Coorg. We thought that this state of affairs would continue, a promise having been given that South Kanara should be reserved for the supply of labour to us. There was no doubt, but that labour was now going to other districts in large numbers. The question therefore arose, had we benefitted by the work of the Labour Department, or had we lost? In his opinion, we had lost: the Labour Department had undoubtedly assisted in sending away what used to be our labour to other districts.

Mr. F. M. Hamilton said that he could not agree that we had, on the whole, lost. He drew attention to the activities of the various private recruiting agencies in South Kanara, and suggested action to restrict them.

The Chairman pointed out that we could not complain of so-called private recruiting agencies; some of us might be said to have them as well, and it would be difficult to distinguish between our labour suppliers and recruiting agencies.

Continuing, he said that there could be no doubt, but that labour was going elsewhere, but we could not condemn the Labour Department in general terms for that. Before condemning it, we had to establish that it had done us harm. No one could deny that the Labour Department did its best to help when cases were reported to it, but presumably, in the matter of sending labour elsewhere, the Superintendent had to obey the orders of the U. P. A. S. I. as representing all subscribers to the Labour Department.

Mr. C. H. Godfrey then traced the history of the Mangalore branch as to its Superintendents, and showed that, owing to sickness, they had continually changed, and that in every instance but one, there had been an interval when the whole business had been run by one, Mr. daCosta. He asked whether Mr. da Costa was the man for the job: could he run the business so as to justify our subscriptions? No, he could not, and the Mangalore branch was not properly run. In other branches, when the Superintendent fell out for any reason, the Director of the Labour Department or some responsible man hastened to his relief. This had not been done in the case of the Mangalore branch, which was the most difficult of all to run, and which, he considered, had not had its proper share of the funds. We should point this out to the Director, and call upon him to take a greater interest in the Mangalore branch, which had always been neglected.

The Chairman said that, as President of the North Mysore Planters' Association, he had had complaints about corruption amongst the staff in South Kanara. He had written to the Superintendent to that effect, saying that it was only to be expected. He had also had complaints that the Wynaad was being favoured at the expense of Mysore, and so on. Such charges were very difficult to bring home. No one had a word to say against Mr. Winterbotham personally. What we wanted was more value for our money, more work from the staff, more money for the South Kanara branch, and an Assistant for the Superintendent to ensure better control. Efficiency was essential; if Rs 20,000 was insufficient, we must have Rs. 40,000 if required, and this should be provided by reduction in other branches.

A resolution passed at the Meeting of the S. M. P. A. on 3-2-21 was read out and elaborated by Mr. W. L. Crawford. The resolution was—"That this Association, together with the Bababudin and the North Mysore Planters' Association, urge upon the U. P. A. S. I. that no member of the U. P. A. S. I. or affiliated association who maintains a private labour agency in South Kanara, be permitted to use the U, P. A. S. I. Labour Department for the execution of warrants against maistries or coolies supplied by such private agency."

The Chairman suggested that, failing satisfaction from the U. P. A. S. I., we should start our own labour agency and fight for our labour. At present, at any rate, we could better afford to do this than the Tea or Rubber interests, provided we did not follow their extravagance, which had had disastrous results.

Mr. F. W. Winterbotham, Superintendent, U. P. A. S. I. Labour Department, Mangalore, was then invited to join the Meeting.

Mr. C. H. Godfrey was requested to recapitulate his history of the Mangalore branch and Mr. da Costa, and did so.

Mr. F. W. Winterbotham pointed out that, when Mr. Martin had gone to the relief of Superintendents, he was Director of the Labour Department alone, whereas Mr. Waddington was Secretary to the U. P. A. S. I., in addition, while Mr. Vincent was Superintendent of the Coimbatore branch.

He said that his agents had but little office work to do, and that he endeavoured to go round monthly, and go into their cases and work. At the same time, certainly in two, and possibly in three taluks, additional staff was needed, but he understood that the available funds would not run to it.

The Chairman said that about the time the Labour Department was started, he had procured statistics that showed that the area under coffee in the Kadur District actually exceeded the total area under tea and rubber in the whole of South India. He suggested to Mr. F. W. Winterbotham that an Assistant would be useful to him.

Mr. F. W. Winterbotham agreed. As to the matter of corruption, he was prepared to deny that his agents were in the pay of the Wynaad suppliers. The point about the Wynaad and all other British Indian Districts was that they could obtain *criminal* warrants against defaulters. In the case of the Native State of Mysore they could not be obtained. All defaulters knew this, and, while seriously afraid of a criminal warrant, did not care at all about the possibility of being run in civilly. In spite of difficulties, his branch had, since 1915, received Rs. 22,000 for Mysore. He asked for suggestions to help matters.

Continuing, he said that cases had occurred of planters from other districts arriving in his area and advancing on a lavish scale, which he did not hear about until too late. Cases had occurred of dismissed agents of the Labour Department having been engaged, and cases of crimping had resulted. He himself had declined to help outsiders to recruit labour, they had retorted that in that case they would do it themselves. Later, warrants arising out of this, in some cases, no doubt, crimped labour had been sent to him to execute. He submitted that this was wrong. Provided that they recruited legitimately, he, of course, was bound to help members of the U. P. A. S. I.

He would like to have an Assistant to revive the post of Indian Superintendent, and to have more agents out in the taluks. The essential thing was to stop private agencies, though he did not see how this was to be done: they should certainly not be allowed to use the Labour Department for executing their warrants.

The following resolution, proposed by Mr. F. M. Hamilton, and seconded by Mr. C. H. Godfrey, was then carried :—" That the following resolution of the S. M. P. A. be brought before the U. P. A. S. I. Executive Committee Meeting on 14-2-21 :—" 'That this Association, together with the Bababudin and the North Mysore Planters' Associations, urge upon the U. P. A. S. I. that no member of the U. P. A. S. I., or affiliated Association, who maintains a private labour agency in South Kanara be permitted to use the U. P. A. S. I. Labour Department for the execution of warrants against maistries or coolies supplied by such private agency.' "

The Chairman suggested that the S. M. P. A. delegate to the Executive Committee Meeting should bring forward the foregoing resolution. This was agreed to. He further put the following resolution, which was carried by acclamation:—"That, at the U. P. A. S. I. Executive Committee Meeting on 14-2-21, the S. M. P. A. delegate urge that the Superintendent, U. P. A. S. I. Labour Department, Mangalore, be instructed to submit an estimate for an increase in his establishment for the more efficient working of his department, commensurate with the magnitude and importance of his district, and that the cost of this increase be met by corresponding reductions in other and less important districts."

The following resolution, proposed by Mr. C. H. Godfrey and seconded by Mr. W. L. Crawford was carried:—"That, in the event of the U. P. A. S. I. Labour Department not seeing its way to forbid its agency in South Kanara to give assistance to those maintaining private resident cooly recruiting agencies there, the three Mysore District Associations are hereby asked to put on the agenda of their next General Meetings the following subject, *viz.*, the desirability of opening a labour agency in South Kanara to safeguard their interests, and to supply coolies to their members."

II. Labour Rates of Pay.

With the consent of the Meeting. the Chairman introduced this subject, and, after considerable discussion, it was put from the Chair and carried by 9 votes to 8 that the matter be referred back to the District Associations for reconsideration.

Mr. F. W. Winterbotham mentioned that it had recently been ruled in the Karkul Taluk that a civil decree emanating from the Native State of Travancore could not be executed in British India. He did not know if this ruling could be upheld, but, if so, it was a further handicap. He suggested that all advances should be made through him, and all promissory notes sent to and endorsed by him, so that he could put the whole matter through in British India. He also mentioned that very often, when he wrote to estates in other districts in British India pointing out that they were employing labour under advance to Mysore, the only reply he got was a request to send a warrant, although it must surely be well known that this was impossible to do.

With a vote of thanks to Mr. F. W. Winterbotham for attending the Meeting and for giving his views, the subject was then closed.

III. Auxiliary Force, India.

Correspondence *re* the formation of an A. F. I. Unit in Coorg and Mysore, and the proposed scheme were read and explained at some length. The G. O. C., Bangalore Area, being anxious to get a Commandant appointed and having asked for a name to be suggested by us, it was proposed by Mr. N. G. B. Kirwan, seconded by Mr. A. L. Hill, and carried unanimously that the name of Lt.-Col. W. L. Crawford, D.S.O., V. D., be submitted as Commandant.

The First Assistant to the Resident in Mysore having asked us to nominate members to serve on the Advisory Committee on the A. F. I. for Coorg and Mysore, Col. Crawford and Capt. N. G. B. Kirwan were nominated.

After some discussion as to the numbers available for the proposed scheme, the Meeting terminated.

(Signed) C. H. BROWNE,
Chairman,
(„) A. L. HILL,
Hon. Secretary.

KANAN DEVAN PLANTERS' ASSOCIATION.

PROCEEDINGS OF THE BI-ANNUAL GENERAL MEETING OF THE ABOVE ASSOCIATION, HELD IN THE HIGH RANGE CLUB, MUNNAR, ON SATURDAY, THE 12TH FEB. AT 3 P. M.

PRESENT.—Messrs. G. R. Strachan, A. H. Dixson, P. D. Armstrong, R. Keir, P. G. Campbell, R. de C. Meade, J. S. B. Wallace, Wm. Mackenzie, A. Yates, W. O. Milne, M. C. Koechlin, A. W. John, J. M. Bridgman, J. S. Hawkins, H. A. Ragg, L. G. Bennet, G. A. Holden, A. J. Wright, and E. H. Francis, (Honorary Secretary.) *Visitors.*—Messrs. E. C. MacCankie, R. de C. Sheilds, C. Galbraith, A. Steven.

The Chairman, Mr. H. L. Pinches, being absent from the District Mr. W. O. Milne was voted to the Chair.

The Minutes of the last General Meeting, as published in the "Planters' Chronicle," were taken as read and confirmed, and the following Agenda placed on the table :—

(1) War Memorial.
(2) U. P. A. S. I. General Meeting. Delegates' Report.
(3) Sri Mulam Popular Assembly.
(4) Coolies' 'Batta'.
(5) Postal Service.
(6) District Rates. Men's Pay.
(7) Motor Traffic.

WAR MEMORIAL.—Mr. Bridgman, Chairman of the Sub-Committee, explained the reason for the delay in this matter, and stated that the design now under consideration would cost Rs. 647 for masonry. As regards the cost of the Bronze Plates he would make enquiries directly he arrived in England, and would advise the Committee by cable. On receipt of this information the design, final estimate, and a subscription list would be circulated to every member of the district.

The design was then passed round the table, and Mr. Strachan proposed ;—'That the design before the meeting be adopted.'

This proposal was seconded by Mr. John, and carried unanimously.

U. P. A. S. I. GENERAL MEETING, DELEGATES' REPORT.—Mr. Strachan read the following report :—

Gentlemen,—We beg to submit the following report on our attendance at the 27th Annual General Meeting of the U. P. A. S. I., held in Bangalore from the 23rd to 26th August, 1920 :—

"In view of the fact that the meetings were fully reported in the papers, and, moreover, that the usual complete Book of Proceedings has already been published, we feel sure you will agree that a lengthy report is both unnecessary and uncalled for, and it will be sufficient for us, therefore, merely to touch on a few points of direct interest to our own Association, and on which we received definite instructions from your Committee."

"As regards the withdrawal of the special concession hitherto allowed for the carriage of TEA on the S. I. Railway, a resolution covering the point at issue was duly proposed by the Nilgiri-Wynaad Association, seconded by the K. D. P. A., and carried."

"As directed, we opposed the resolution brought forward by the Mundakayam P. A. questioning the action of the Executive Committee in giving a donation of Rs. 50,000 from the S. I. P. War Fund to Lady Willingdon's scheme for a Nursing Home in the Nilgiris, and the said resolution was lost by a large majority."

" Having in view your wishes in regard to the disposal of the balance of the War Fund, we brought forward the following amendment to the resolution proposed by the Mundakayam Association :—

> " That, after the payment of all present liabilities the balance standing at the credit of the S. I. P. War Fund be transferred to the S. I. P. Benevolent Fund, and that all liabilities in connection with the former be in future met by the latter fund. Further, that this amount be capitalised."

" This amendment was seconded by the S. Travancore P. A. representative, and, on being put to the vote was carried. A word of explanation is, we think, necessary in regard to the recommendation that the amount be capitalised, and we proposed this after due consideration and consultation with the other delegates. It seems very necessary that, instead of the present hand to mouth existence of the fund, it should have a certain annual income over and above the amount subscribed annually by members, and as the sum to be transferred from the War Fund will amount to approximately Rs. 37,000 it seemed an excellent opportunity to make a start in this direction. The balance standing at the credit of the Benevolent Fund, as per statement of accounts submitted at the meeting, *i.e*,, as at 31—3—20, was Rs. 19,259-12-11, which sum should be sufficient to meet all immediate disbursements, and if the present rate of subscription continues, it seems possible that the capital may be increased year by year until eventually the fund is in the happy position of being self-supporting."

"One other point, which is of direct and very important interest to ourselves, is the present Export Duty on Tea, and Mr. Gwynne of the Wynaad P. A., in moving a resolution asking for the withdrawal of the same, pointed out that this was considered by all Tea Planters as purely and simply a war measure, and that now hostilities had ceased he considered that the duty was uncalled for and too heavy an impost on the Industry. It is needless to add, gentlemen, that Mr. Gwynne's resolution was carried, and we can only hope it will have the desired effect."

"The question of ocean freights was also brought up, and as Messrs Peirce Leslie & Co's and Messrs Aspinwall's representatives, who were present at the Meeting, undertook to do their best to assist the U. P. A. S. I. in securing a reduction of freights there seems to be some grounds for hope that the desired result will be reached."

" There is no further subject on which we consider it necessary to make any remarks, and, in conclusion, gentlemen, we thank you for the honor conferred on us in electing us as your delegates at the meetings."

The Honorary Secretary proposed a hearty vote of thanks to Messrs. Strachan and Lee for the able way in which they had looked after our interests at the meeting. This was seconded by Mr. Bridgman, and carried unanimously.

SRI MULAM POPULAR ASSEMBLY.—The delegate, Mr. J. S. B. Wallace, stated that the Committee had instructed to take up the following subjects :—

(a) Restrictions regarding the driving of motor vehicles on the Ghaut Roads between sunset and sunrise.
(b) Condition of the Western Outlet Road.

After Government was notified of these subjects, however, the irritating police regulation regarding night driving had been withdrawn. There remained the subject of the Western Outlet Road, and he intended to urge Government to sanction the new deviation through the Kadalaar Valley and the metalling of the whole road.

COOLIES' BATTA.—With a view to uniformity in this matter, Mr. Milne proposed the following resolution from the chair :—

> "That 6 annas per night be considered the recognised "batta" for a cooly."

Mr. A. W. John proposed, and Mr. Campbell seconded the following amendment—

> "That 4 annas per night be considered the recognised "batta" for a cooly."

On being put to the vote the amendment was lost, and the resolution carried.

POSTAL SERVICE.—The Honorary Secretary was instructed to write to the Superintendent, Post Offices, Madura, to point out the irregularity with which the mails are delivered in Munnar.

DISTRICT RATES. MEN'S PAY.—The Honorary Secretary stated that the Committee had received an advice from the General Manager, K. D. H. P. Co. to the effect that the rate for men coolies, on all estates under his control, was raised to 7 annas per day on the 1st January, 1921.

MOTOR TRAFFIC.—The Honorary Secretary informed the meeting that the attention of the Committee had been drawn to certain dangers and inconveniences to motorists in this District, and that the resolutions he had to put before them were based on the findings of a Sub-Committee which had investigated the matter. The Sub-Committee considered a Motor Union impracticable from a financial point of view, and that the P. A. Committee could do all that was necessary. He therefore proposed :—

> " That a Standing Sub-Committee be formed to watch the interests of the motorists in this District, and that this Sub-Committee consist of 3 members of the P. A. Committee, with power to add to their numbers. Mr. Strachan seconded this proposal, which was carried unanimously.

The Honorary Secretary proposed, and Mr. Ragg seconded the following resolution which, after some discussion was also carried unanimously :—

(a) That, on all roads except the Tramway, the English Rule of the Road must be observed. This not to apply to bullock carts.

(b) That motorists who use the Tramway should observe the following rule, *viz*., side-cars and motors should give way to solo machines, which should always be given the outside track ; otherwise the rule of the road applies.

(c) That all motorists' attention be drawn to the fact that the practice of riding without a light after dark, without properly adjusted brakes, or without some proper means of giving warning of approach, is against the Law of Travancore as well as of British India.

(d) That motorists be asked to approach corners with caution, and to sound their horns at the more dangerous.

(e) That a copy of this resolution be circulated to all motorists, the Indian Institute and the Commissioner, Devicolam.

(f) That members will draw the Committee's attention to any breach of these rules.

Proposed by the Honorary Secretary, and seconded by Mr. Ragg :—

That your Committee solicit the help of the General Manager, K. D. H. P. Co., and in some cases the Managers of Talliar and Lockhart so as to obtain the following improvements :—

(a) Identification marks on all carts in their control.

(b) To insist on the carriage of lamps by estate carts after dark.

(c) To obtain camp sidings for cartmen on the Northern Outlet Road.

(d) To insist on the Udamalpet Cart Contractors carrying wooden wheel stops, so as to do away with the practice of placing rocks on the Ghaut roads.

(e) To insist that no firewood, stones, or metal be stacked at road corners, or in such a way as to reduce the surface of the roads to less than ten feet.

(f) That, wherever possible, the corners on their cart roads should be stepped back, and dangerous places marked. These cuttings and sign posts to be located in consultation with the P. A. Sub-Committee.

g) That no Estate cattle herds should be allowed to graze on cart roads.

(h) That signals showing roads under repair and blasting should be displayed.

(i) That the rail crossings in Munnar should be improved at places to be fixed in consultation with the P. A. Sub-Committee.

(j) To obtain a broader road between the Munnar Bazaars and the M. S. A. wherever possible, or necessary.

This was carried unanimously.

INTER-DISTRICT SPORTS.—The Chairman asked for this item to be added to the agenda, as a decision was required urgently. Read letters from the Honorary Secretary (*pro tem*) Inter-District Tennis Tournament, dated the 29th January, 1921. It was unanimously agreed that this Association enter a team in Group 'B,' and that this team be selected by the P. A. Committee. Mr. Yates proposed, and Mr. Meade seconded :—"That the entrance fee of Rs. 100 shall be paid out of the Association funds." Carried unanimously.

A vote of thanks to the Chair terminated the proceedings.

(Signed) W. O. MILNE,
Ag. Chairman.

(,,) E. H. FRANCIS,
Honorary Secretary.

WYNAAD PLANTERS' ASSOCIATION.

PROCEEDINGS OF AN ORDINARY GENERAL MEETING, HELD AT MEPPADI CLUB, ON 23RD FEBRUARY, 1921, AT 2 P.M.

PRESENT.—Messrs. C. E. Abbott, S. H. Powell, J. C. Blackham, W. G. Craig, E. E. Eyre, and J. A. Gwynne, Honorary Secretary. Visitor—Sergt. Instructor C. Paynter.

Minutes of last Meeting were confirmed.

ELECTION OF PERSONAL MEMBERS.—Messrs. C. E. Abbott, S. H. Powell, J. C. Blackham, W. G. Craig, J. A. Gwynne, E. E. Eyre, and B. D. Darkin were duly elected personal members.

INCORPORATION.—Read letter from the Secretary, U. P. A. S. I. when the Honorary Secretary was instructed to send the names of seven personal members for the purpose of registering the Association.

GRANTS OF LAND TO DEMOBILISED PLANTER SOLDIERS.—The correspondence received from the U. P. A. S. I. was read, and the Honorary Secretary asked to enquire from members of the Association who had served during the war and had previously been planters if they wished to take up land should the Government grant it.

NEW LABOUR CONNECTIONS.—As certain members of the Association had applied for Ganjam labour, the Honorary Secretary was instructed to enquire, with reference to the circular, dated 31st January from the U. P. A. S. I., whether the new agency was going to be established or not.

RECREATION GROUND AND RIFLE RANGE AT VAYITRI.—Read letter from the Special Settlement Officer asking for reasons of objection to this land being resumed by Government for cultivation. It was pointed out:—

(1) That the Rifle Range is used every year, and is the only suitable piece of land for a range in the District.

(2) That it is the only suitable piece of land for military training, and it has been used every year for this purpose.

The Association therefore hopes that the Special Settlement Officer will recommend Government to allow all the survey numbers mentioned in his letter to remain as recreation ground

INTER-DISTRICT TENNIS TOURNAMENT.—It was resolved that the Association support the proposal and subscribe one hundred rupees.

LOCAL ADMINISTRATION.—It was recorded that the matter was in the hands of the Planting Member who has undertaken to place it before Government, and will communicate the result to us.

LABOUR DEPARTMENT.—Letter from the Superintendent, Mysore was recorded with reference to defaulting coolies working in the Bangalore Cotton Mills.

With a vote of thanks to the Chair the meeting terminated.

(Signed) C. E. ABBOTT,
Chairman.

(„) J. A. GWYNNE,
Honorary Secretary.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore, 9th March, 1921.

SECRETARY'S REPORT NO. 10.

1. FINANCIAL AID FROM GOVERNMENT FOR TEA ESTATES.—Under the instructions of the Executive Committee, a letter is being published in the "Planters' Chronicle" this week, inviting tea proprietors to submit applications for financial aid from Government. All replies received by the end of this month will be considered by the Executive Committee, and should the applications received give sufficient indication that such aid is a necessity, they will place the case before Government,

2. SHIPPING FREIGHTS.—Intimation has now been received that the rate on Tea and Rubber from the Malabar Coast to London has been still further reduced to 75s. per shipping ton, less the usual rebate of 10%.

3. RESTRICTION OF TEA SHIPMENTS.—In urging their members to restrict shipments of tea, the Indian tea Association advise having received the following telegram:—

> " Restriction shipments deliveries all tea during January 33 million pounds. In view of this must restrict Calcutta and Chittagong shipments to London to 20 million lbs. in March, reducing, also if possible, February shipments."

4. JAVA TEA IN AUSTRALIA.—Java has been making a determined effort to place their surplus stocks of Tea on the Australian Market, and is proving a serious menace to the sale of Indian and Ceylon Teas in that market.

The Ceylon Chamber of Commerce has suggested that the Government of India and Ceylon should urge the Commonwealth Government of Australia to grant preferential treatment to British Grown Tea. The Secretary is in correspondence with the Chamber of Commerce of Madras and the West Coast, and the Indian Tea Association, and has asked them to support the action taken by the Ceylon Chamber of Commerce.

5. S. I. P. BENEVOLENT FUND.—I am glad to be able to report the receipt of a donation to this fund of Rs. 200, received through the South Mysore Planters' Association. This makes the first addition to the list of Life Members since the new rules have been in force.

6. EXECUTIVE COMMITTEE.—Mr. Mead having left India caused a vacancy on this Committee. Mr. E. Lord, Member-in-Waiting, having intimated that he was unable to act as Active Member, the Executive Committee have elected Mr. J. R. Vincent to be Active Member for Rubber, and Mr. Lord continues to be Member-in-Waiting.

7. LOCAL BRANCH, R. G. A. EXECUTIVE COMMITTEE.—Mr. A. H. Mead, Chairman, and Mr. R. Lescher having left India has caused two vacancies on this Committee. Mr. J. R. Vincent having been elected Active Member for Rubber on the Executive Committee of the U.P.A.S.I. becomes ex-officio Chairman of the Local Branch, Rubber Growers' Association. The Executive Committee have elected Mr. E. H. Halliley as a member of the Committee *vice* Mr. R. Lescher.

8. RICE ISSUE ON ESTATES.—With reference to Item 4 of last week's report, under instructions of the Executive Committee all District Associations have been asked if they will adopt the standard of 400 tolas weight per rupee for the issue of estate purchased rice to coolies, so as to prevent its being used as a competitive means of attracting labour.

(Signed) C. H. BROCK,
Asst. Secretary.

U. P. A. S. I.

FINANCIAL AID FROM GOVERNMENT FOR TEA ESTATES.

To all Members interested in Tea.

Dear Sir,—As the South Indian Branch of the Rubber Growers' Association are considering the matter of approaching Government with a view to obtaining some form of temporary financial aid to enable Rubber Estates to carry on through the present crisis, the Executive Committee have suggested that the Secretary, U. P. A. S. I., invite the opinion of Tea Planters through a letter in the "Planters' Chronicle" to say if they would like a similar move to be made on behalf of Tea Estates.

As regards Rubber, proposals vary from a temporary remission of assessment to mortgage loans of up to Rs. 250 per acre.

The amount of aid required by Tea Estates would vary considerably according to their financial position, the small individual proprietor being probably in far more urgent need of help than Companies, or the owners of large Estates.

It remains for proprietors, or their agents, to send in to the Secretary, U. P. A. S. I., Coimbatore a statement of his position, the amount of assistance he requires, and the security he is prepared to give to the Government, should such assistance be granted. Figures giving the acreage of Tea being plucked during 1921-2, young tea not in bearing and tea abandoned, also reductions in staff, European, Eurasian and Indian, should be given, as a summary of these particulars will strengthen the appeal to Government. Needless to say, all such information received will be treated as strictly confidential.

All replies received by the end of this month will be considered by the Executive Committee, who will place the case before Government should the applications received give sufficient indication that financial aid from Government is a necessity.

(Signed) C. H. BROCK,
Asst. Secretary.

THE RUBBER GROWERS' ASSOCIATION.

(INCORPORATED.)

The Secretary, R. G. A. addresses the following letter to all members:—

Brokerage

In September last the Brokers forwarded an application to the Council for an advance in the rate of brokerage from ½% to 1% on spot sales of rubber. The matter was referred to a Committee of the Council for investigation, and, after interviews and correspondence with a deputation from the Brokers concerned, the Committee came to the conclusion that, in view of the heavy increase in Office Rent, Salaries, and General Office expenses, the business in spot rubber was, under present circumstances, unremunerative, and that the Brokers' request for an advance in Brokerage on spot rubber in London was fair and reasonable.

At a Meeting of the Council, held on 7th February, the following resolution was carried :—

> " The Council recommend Members of the Rubber Growers'
>
> Association to pay a brokerage of 1% (one per cent)
>
> for selling first hand rubber *on the spot on sample.*
>
> Such scale of brokerage to come into force on 13th
>
> February, 1921, and to remain in force so long as
>
> the Council shall think fit."

In connection with the services rendered by the brokers, it is suggested that such services should include the inspection of Rubber at the Docks by the Selling Broker, who, in the interests of the Importer, should check the grouping and sampling by the Dock Officials as is done in the case of tea. The Council are of opinion that Producers, if they so desire, should be entitled to such inspection work as part of the services to be rendered by their Selling Broker, and covered by the brokerage referred to above.

(Signed) FRANK G. SMITH,
Secretary.

RUBBER TRADE ASSOCIATION OF LONDON.

Monthly Statistics.

FEBRUARY, 1921.

Movements of all kinds of Rubber to and from the United Kingdom as per BOARD OF TRADE RETURNS.

IMPORTS.

From	January.			12 Months ended Dec.		
	1921	1920	1913	1920	1919	1913
Straits Settlements and F. M. S. ...	7,126	3,340	1,806	59,672	58,132	24,984
Ceylon and British India ...	1,866	2,873	603	26,912	20,000	7,583
Dutch East Indies, &c. ...	1,341	829	89	12,940	12,062	1,647
Brazil and Peru ...	313	426	2,014	8,290	8,617	17,532
Other Countries ...	125	221	1,479	3,064	3,080	18,542
Total Tons ...	10,771	7,689	5,991	110,878	101,891	70,228

EXPORTS.

To	January.			12 Months ended Dec.		
	1921.	1920.	1913.	1920.	1919.	1913.
United States of America ...	178	5,625	1,445	24,849	28,510	17,791
Canada ...	11	649	3	3,245	2,735	439
France ...	244	1,054	382	11,920	10,694	5,319
Belgium ...	114	216	150	2,163	3,757	2,269
Italy ...	160	136	28	2,689	4,462	252
Spain ...	7	14	6	229	289	65
Germany, Austria, Hungary ...	406	253	825	5,319	2,257	9,869
Russia ...	...	4	667	63	76	6,354
Sweden, Norway and Denmark...	164	58	71	1,298	2,935	650
Other Countries in Europe ...	83	83	103	1,080	3,204	1,247
Other Extra European Countries.	12	107	24	1,052	453	757
Total Tons ...	1,376	8,199	3,704	53,907	59,372	45,012

LANDINGS, DELIVERIES and STOCKS in London and Liverpool as returned by the Warehouses and Wharves durng the month of Jan.

		Landed for Jan.	Delivered for Jan.	Stocks 31st Oct.		
				1921.	1920.	1919.
LONDON ...	Plantation ..	8,783	2,842	56,165	20,530	15,004
	Other Grades ...	...	22	408	570	405
LIVERPOOL...	Plantation ...	781†	395†	4,347†	1,511†	2,400†
	Para & Peruvian	510	227	903	520	856
	Other Grades ...	17	...	456	383	599
Totals London & Liverpool ...		10,091	3,486	62,279	23,514	19,264

† Official Returns from the six recognised Public Warehouses.

Movements of all kinds of Rubber, excluding Gutta, Balata and Guayule, to and from the U. S. A., AS PER RETURNS OF THE UNITED STATES DEPARTMENT OF COMMERCE.

	November.			11 Months ended Nov.		
	1920.	1919.	1918.	1920.	1919.	1918.
IMPORTS ...	14,712	24,913	6,773	242,135	214,508	139,032
EXPORTS ...	250	109	53	3,442	1,859	2,722

RECEIPTS AT PARA.

	Jan.			July/Jan. (Seven months).		
	1921.	1920.	1919.	1921.	1920.	1919.
Rubber ...	2,500*	2,620	2,235	11,300*	16,280	12,923
Caucho ...	280*	300	250	2,261*	3,170	2,602
Total ..	2,780*	2,920	2,485	13,561*	19,450	15,525

* Estimated.

INTER-DISTRICT SPORTS.

A Meeting of the Committee was held on the 9th instant to consider applications, conduct drawings, etc., in connection with the Inter-District Tennis Tournament. The Honorary Secretary announced that he had received entries from the following :—

Shevaroys, Anamalais, High Range, Peermade, Mundakayam, West Coast, Nilgiris, Nilgiri-Wynaad, Wynaad and U. P. A. S. I. Total 10 entries.

This was considered very satisfactory, and it was decided to continue with the original scheme with the exception of the grouping.

A letter was received from the K. D. P. A. suggesting that, as the same men may not always be available, and considering the difficulty of distance and the matter of leave, the composition of the team may be changed from " round " to " round," if necessary. The Committee agreed that under the circumstances there could be no objection to this.

GROUPING.—As the Shevaroys was the only entry in Group C, it was decided to regroup the districts as follows :—

GROUP A—Peermade, Mundakayam and West Coast.

GROUP B—Anamalais, High Range and Shevaroys.

GROUP C—U. P. A. S. I., Nilgiris, Nilgiri-Wynaad and Wynaad.

RULES.—It was decided (with the exceptions stated) to adhere to the aules published in the Chronicle of 29th January, with the following rdditions :—

(a) The matches shall be decided on points calculated as follows :— For each singles the winner shall score one point for his side. For the doubles the winners shall score 3 points for their side.

(b) In explanation of Rules 4 and 5 (P. C. 29th January) two singles means that each of 2 players in a team shall play a singles against each of 2 players in the opposing team.

THE DRAW.—The draw resulted as follows : and was carried right out to the finals thus :—

	1st Round.	2nd Round	GROUP Semi-Finals.	GROUP Finals.
GROUP A—				
Peermade	v. West Coast			
Mundakayam	a Bye			
GROUP C—				
U. P. A. S. I.	v. N. Wynaad			
Nilgiris	v. Wynaad			
GROUP B—				
High Range	v. Anamalais		a Bye.	
Shevaroys	a Bye			

DATES. The following dates were fixed :—

The first round must be played on or before 30th April, 1921.
The second round on or before 31st May, 1921.
The third round on or before 30th June, 1921.

The finals will be played at Bangalore during the holding of the U. P. A. S. I. Annual General Meeting from August 22nd onwards.

Venue.—The matches ordinarily should be played on the ground af the first named club, but may, by mutual agreement, be played on neutral courts.

For the Committee

EDWIN VINCENT.

Coimbatore, 9-3-21. Hon. Secretary.

NOTES AND NEWS.

Freights.

Just as we go to press we hear that Tea and Rubber Freights from the West Coast to London have been reduced to 65s. per ton less the usual contractors' rebate of 10%.

The Kanan Devan Planters' Association.

The minutes of the last half-yearly General Meeting of this Association appear in this week's issue. Dealing as they do with the delegates' report of the last U .P. A.S. I. Annual Meeting, held as far back as August,1920, we most respectfully tender the suggestion to the officials of the Association that the minutes would be of considerably more interest had this report been published earlier. Why not hold the half-yearly meetings in Apri. (after the end of financial year) and October (soon after the U. P. A. S. I. Meeting).

The Inter-District Tennis Tournament.

We are asked to announce that the finals were not fixed to be held at Bangalore in August because of the facilities thus offered to the U. P. A. S. I. team.

Coffee Prices.

After all the talk about good prices being expected for the new season's crop our coffee cable is rather a stock quoting as it does 108s., the lowest figure recorded for many months.

Pity the Poor Secretary.

We notice the Assam Branch of the Indian Tea Association is requested to make known to its members a communique from Government on the subject of "The Protection of the Rhinoceros" in Assam.

Mr. R. D. Anstead.

Planters will be interested to learn that Mr. R. D. Anstead is due to leave England by the "Lancashire" on 31st March next, and may be expected to arrive in Colombo on 25th April, 1921.

The Anamalai Ghaut.

Extraordinary interest has been aroused by the experiments with lorries on the Anamalais Ghauts. We hope next week to give some details of the performances of the Sentinel Steam Waggon, the Garford Lorry and the F. W. D. which cryptic title means the "Rour Wheel Drive" for which Messrs. Massey & Co. are Agents.

LETTERS TO THE EDITOR.

[*The Planters' Chronicle is not responsible for the opinions of its Correspondents.*]

FOXY COFFEE.

(Continued.)

SIR,—To explain the cause of the above one must remember that the fruit, or so-called " cherries" consist of an outer fleshy skin coloured like a Cherry (whence the name), this covers in turn a smooth straw coloured-husk, known as "Parchment," and between this latter and the seed, there is a thin membranous covering known as the "silver skin." It is the discoloration of this latter to the colour of a Fox, that gives the term. The cause of this discoloration is, that at a certain state of ripeness, the fruit undergoes a chemical change, when if the outer skin is still in contact with its parchment, a discoloration takes place of the saccharine matter that is present, and this colour is conveyed to the pellicule, or "silver skin." If however the fleshy pulp is removed from contact with the rest of the bean, before this ferment can take place, the cause of discoloration will be removed.

In practice the most usual cause of "Foxy Coffee" is, that the fruit has been allowed to become over-ripe, and that before being passed through the Pulper, time has been allowed for this chemical change (which is accelerated if cherries are allowed to heat) to take place, hence resulting in the beans turning out "Foxy." Another way that the same result may be obtained, is, by a lot of the outer fleshy pulp being passed into the fermenting vats, along with the parchment during the process of pulping, and this pulp being allowed to stay there for about 36 hrs. the time necessary for allowing the saccharine to ferment, so that it can be washed off the parchment. In both instances one has the fleshy pulp in conjunction with the parchment and silver skin.

To sum up, if parchment is allowed to remain in its outer fleshy covering during a certain period, a "ferment" sets up, that results in above discoloration. Foxy Coffee proves that fruit was fully ripe when picked, as it is only in this condition, and with its outer fleshy pulp in contact with the parchment, the chemical change takes place.

Yours faithfuly,

E. W. R.

LAND GRANTS.

DEAR SIR,—The U. P. A. S. I. as a co-operative body containing a number of ex-service men was asked by the Madras Government to forward applications for grants of land from demobilized soldiers. This was to provide a convenient avenue for communication between Government and applicants. Further, as a body of men with actual experience in working land the Association was asked to suggest a scheme for land grants,

From p. 128 of the *Planters' Chronicle*, I see the Executive Committee has gone beyond the limits of the reference, and has told Government the class of men to whom grants of land should be given. They have also dictated to Government that the qualifications for land grants should not be length or quality of war service, but length of service as a Professional Planter in Southern India. I also gather the Committee has decided to forward to Government only those applications which fill the conditions it has laid down and presumably to suppress all others.

Everyone knows that land grants for war service or *Fauji Inams* are given in the name of the King Emperor. Recommendations are made in much the same way as for War Honours by the Commander-in-Chief and the main, if not only, matter considered is the service record of the applicant. For the Executive Committee of the U. P. A. S. I. to imagine that Government will consult it in the actual selection of individuals for reward is to make the Association appear ridiculous.

The Army Department can be safely trusted to make its own selections, and, if my information is correct, this work will be so well done that no one will get any land at all.

Yours faithfully,

(Signed) C. ST. JOHN IVES,

Mailoor Estate, Kullakamby

3rd March, 1921.

Note by the Secretary, U. P. A. S. I.—Above letter was written under a misapprehension. Government have not asked us to forward applications, or suggest a scheme. Action was taken by the Association in consequence of a resolution passed at Bangalore urging that Government should consider the question of free grants of land to demobilised planter soldiers. We have tried to put before Government a sug gestion that would be acceptable by them, and to ascertain what demand there is from planters who went to the war for Land grants. Procedure as to grants of land to demobilized soldiers in India was doubtless materially altered with the constitution of the "Soldiers Board" of which I am a member, and efforts were made to find land for any demobilized man who applied without reference to the Commander-in-Chief.

(Signed) H. W.

RUBBER ROADS.

DEAR SIR,—It may interest Rubber Planters to read the following extract from a London paper received this mail.

"Silent London Street"

" Rubber-paved streets in London are predicted, Southwark having
" made a successful test. It is claimed that rubber lasts longer, reduces
" street noises, lengthens the life of vehicles, is easy for horses' feet,
" non-porous, and not affected by heat."

Yours faithfully,

(Signed) J. V. SHANK,

Manager.

FOR SALE.

PLANTERS TO NOTE.

G. H. Reader Sons Sheffield Make. PRUNERS, TAPPING GOUGES, KNIVES. Absolutely best & cheapest made. Prices and Illustrations from :—

KHADER & YOUSUF BROS.,
Manufacturers' Agents,
Madras.

One JACKSONS' PATENT TEA EQUALISER. Erected in and used since 1910 but in good order. Price complete delivery Ootacamund Rs. 450.

Apply :—MANAGER,
Woodbriar Estate,
Devarshola P. O.

For fresh Vegetable and Flower Seeds, Economic and Ornamental Plants,

Apply—CURATOR,
Government Botanic Gardens,
OOTACAMUND.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" Coffee

(BY CABLE.)

LONDON, DATED 15TH MARCH, 1921.

105s. per cwt. Nominal.

THE GENERAL DEPRESSION.

It is difficult not to be pessimistic these days when every mail, every journal, we read has a tale of woe for the Tea and Rubber planter. The peculiarity of these reports compared with the information regarding Coffee is rather striking. Briefly, our Tea and Rubber mentors are frankly pessimistic for several thousand words, and generally wind up with a brilliant forecast of better things to come. The Coffee experts, on the other hand, tell us that magnificent prices may be expected for the new crop now arriving in London. Actually, the Tea and Rubber positions show a slight improvement, and our weekly coffee cable continues to knock sideways the talk of exorbitant prices.

The fact is, of course that we are in the same boat as half a dozen other products, pulling away from the shipwreck of our dreams for some friendly harbour, whence in due course, we shall no doubt embark again on some argosy to which we can but wish better luck than that which has overtaken our craft this year. This somewhat rhetorical simile has point in the constant adjurations to planters to "pull together," and certainly it would seem folly not to do so ; yet, we read of it elsewhere and feel that, in this country also, there is a lack of any indication of that perfect unanimity which is essential to success in this direction.

Let us examine for a moment the average prices quoted in London during the year 1920 of a few of our sister products. Sugar up to 160s per cwt. in June was 80s. maximum in December. Copra (Ceylon) £ 73·10·0 per ton in the beginning of the year was quoted £ 37·10·0 in December. Cocoanut oil (Cochin) spot per ton, up to £ 120 in Feb. 1920, and £ 99 in December of the same year. Cotton, which of course has a tremendous influence on the price of tyres, maximum January, 1920, 27·66d. per lb. Minimum December, 1920, 10·33d. per lb. We are indebted to a Malayan contemporary for these figures, and to "Tropical Life" for the information regarding cocoa, showing Trinidads from 132s. to 80s, Grenadas 130s to 95s., and Accras from 104s to 39s. Our own little pets show similar results, Rubber, Crepe and Sheet having fallen in 12 months from 2s. 8d. to 11d. and Coffee from 179s. per cwt. on a firm market, (March 12th, 1920) to 105s. (March 15th, 1921). In spite of these figures, it is only quite recently that the cost of living at home has shown any appreciable reduction. In so far as India is concerned, we are very much in the hands of other products on which depends the return to normal times. In one short year the balance of trade, which was some Rs. 6,250 lakhs in India's favour, has switched over to an adverse balance of Rs. 2,900 lakhs, a complete reversal of position which can only be remedied by increased exports. Wheat, Jute and Tea are all having their influence, and the restriction of export of Tea would seem unjustifiable from this point of view. A return to an excess of Exports over Imports would mean an increased exchange, but would at least enable the Government to stabilise it. The Jute people are restricting output under the circumstances at present ruling in the world's markets, so that whereas we are told that increased exports would be India's salvation, there is on the other side the Charybdis of over-production, or rather lack of purchasing power in the consuming countries. The remedy then must come from our customers, and since restriction of output is calculated to cure one of the symptoms of our illness, the doctor prescribes rest and quiet for a time.

A letter appeared in these pages last week regarding Rubber roads in which our correspondent points out that the experiment in the London Borough of Southwark was successful. We have heard conflicting reports of this test, but are glad to have his assurance together with some information accorded by "The Planter" on the question of Rubber roads in Singapore. Restriction of output, new uses for rubber, co-operative selling, etc. are all worthy of consideration at a time of crisis like this, but they all pale into insignificance before the manufacture and use of rubber in the country of production. Here at once is a stimulus to home (Eastern) industries and a means of relieving the European markets of surplus raw material. Cheap labour and cheap rubber are readily available, and we recommend to the Government of Madras the resolution of the Singapore Municipality. Quoting our contemporary :— "Col. Pearson, the Chief Engineer stated in Council that he had several schemes in his mind. He thought the idea of vulcanising rubber on to concrate plies would be much cheaper than steel.

> " A Councillor said that ever since rubber was first grown in the Straits it had been said that once the price dropped below one shilling streets would be paved with it. It was for them to prove that that was not simply wild talk. If there was one place in the Empire that should commence paving roads with rubber, it was Singapore, the fountain head of the rubber world, and he felt sure many estates throughout the peninsula would be only too pleased to make the Singapore municipality gifts of such rubber as was required for their experiments.
>
> " Permission was accordingly granted to the Municipal Engineers to go on with the scheme."

If this can be done in Singapore surely it is worth the Madras Government's while considering the paving of Mount Road with rubber. We will not say, like the Singapore Councillor, that many estates would be only too pleased to make gifts of rubber for experiments though this is quite possible, but we do suggest that a start be made by paving, say, the approaches to Government House or the Council Chamber with the produce of the presidency rubber plantations. The question of starting a rubber factory in South India has recently been before Government with a negative result it is true, but a large demand for rubber roads from other corporations once the Madras experiment was pronounced successful would justify the expenditure such a factory would entail. At one stroke the Government would answer the various demands for more industrial development financial aid to planters and improving the amenities of Madras City, in the most practical way possible.

NILGIRI-WYNAAD PLANTERS' ASSOCIATION.

PROCEEDINGS OF A GENERAL MEETING, HELD AT GUDALUR, AT 11-30 A.M., ON 7TH MARCH, 1921.

PRESENT—Messrs. J. S. Nicolls (Chairman), J. Aird (Vice-Chairman), G. W. Fulcher, J. E. Bisset, J. B. Adkins, G. A. Rutter, W. B. de Courcy, R. Fowke, L. Garrett, B. J. Blackett, J. W. H. Bradshaw, and F. W. F. Fletcher (Honorary Secretary).

The proceedings of the last Meeting having been confirmed, Messrs. J. B. Adkins, B. J. Blackett, and J. W. H. Bradshaw were unanimously elected members of the Association.

COMPENSATION FOR IMPROVEMENTS ACT.—The Chairman gave the Meeting the substance of his recent interview with the Planting Member on this subject. The Honorary Secretary read the draft bill to extend the Act to the Nilgiri-Wynaad, recently published by Government, and pointed out the additions that would be necessary if the Act was to afford relief to existing Estates. Satisfaction was expressed by the Meeting that this long looked for and urgently needed Act was within measurable distance of becoming an accomplished fact.

NEW RECRUITING AREAS.—This subject was considered in Committee, and the Honorary Secretary read his correspondence with the Secretary, U. P. A. S. I., which was approved.

MEDICAL ATTENDANCE.—The Honorary Secretary read letter from the Vice-President, District Board, Nilgiris, regarding subscriptions on an acreage basis to the nearest Local Fund Hospital from those estates which did not possess their own medical officers, in return for free medical attendance. He was instructed to reply that all Estates without resident medical officers were prepared to make arrangements for medical aid with those possessing such officers—an arrangement which would be far more convenient to them than a subscription to a Local Fund Hospital, and further to point out that some estates which might subscribe to L. F. institutions declined to do so because the men in charge were not properly qualified, and were not provided by the District Board with any means of visiting estates at a distance from the Hospitals to which they were attached.

INCORPORATION.—The Honorary Secretary read letter from the Secretary, U. P. A. S. I., No. 2643, dated 27th January, and his reply dated 29th January. It was presumed that the Memorandum and Articles of Association had already been submitted to Government, as the rule required. The two fresh signatories named in the Honorary Secretary's letter had intimated their willingness to sign when called upon.

MOTOR SERVICE TO CALICUT.—The Honorary Secretary read letter from the Managing Director of Messrs. Walford & Co., promising preliminary estimates very shorly, and a visit to the District some time in March. The Meeting hoped that this visit would materialise, and the Honorary Secretary was instructed meanwhile to assure Captain Walford of a hearty welcome, and to inform him that, if he could not bring his own car, arrangements would be made to take him over the route in a motor.

TEA CESS ACT.—Honorary Secretary read a letter on this subject from Mr. J. F. Bryant, I. C. S., M. L. A., late Collector of the Nilgiris, without date, but received on 13th February. He was instructed to thank Mr. Bryant for his continued interest in the Association.

GRANT OF LAND TO PLANTER-SOLDIERS.—Letter from the Secretary, U. P. A. S. I., No. 2904, dated 17th February was read to the Meeting. The members interested in this subject hoped that Government would accede to the proposals made in the Secretary's letter to the Secretary to Government, Revenue Department, which they considered eminently fair and reasonable.

U. P. A. S. I. BUDGET.—This was discussed in Committee. The Meeting was of opinion that, apparently everything had been done which could be done to reduce the large deficit as shown in the Secretary's draft budget, by curtailing expenditure on the Labour Department, but regretted that an additional cess of 2 annas per acre would again have to be levied.

INTER-DISTRICT SPORTS.—The Honorary Secretary read correspondence with Mr. E. Vincent. The necessary entrance fee of Rs. 100 was raised in the room by private subscriptions, and the Honorary Secretary was instructed to wire Mr. Vincent that a team representing the Association would enter.

ELECTION OF MEMBER OF GENERAL COMMITTEE, U. P. A. S. I.—Mr. Nicolls having resigned, Mr. R. Fowke was elected in his place.

LOSS ON RICE.—This question having been discussed, the following resolution was put from the Chair, and carried :—

> "This Meeting is of opinion that the issue of rice by estates belonging to the N-W. P. A. should be fixed at 400 tolas for the rupee, and would urge that all other Associations be asked to adopt the same basis."

EAST COAST LABOUR.—Mr. Fowke pointed out the urgent necessity for an agreement between all Districts in the matter of coolies imported from the East Coast, in view of their high cost to the Estates for which they were originally recruited. The Honorary Secretary said this question had already come before the Association, and had been referred to the Secretary, U. P. A. S. I. with the object of securing, if possible, reciprocity between the Districts to which East Coast labour had been supplied. The following resolution, proposed by Mr. Fowke, and seconded by Mr. Aird, was passed :—

> "That this Association, taking into consideration the expense and risk involved in the recruitment of coolies from the new areas now being tapped, viz., the East Coast and Ganjam, resolves that no Estate may employ, cause to be employed, or permit its Maistries and Contractors to employ, any labour from the above named areas which has not been directly recruited for the Estate concerned."

The Honorary Secretary was instructed to ask the Secretary, U. P. A. S. I. if he was in a position to afford any further information on the Association's reference of 17th November last on the above subject, beyond that given in para 1 of his letter No. 2089, dated 20th November, 1920.

ATTESTATION OF AGREEMENTS IN MARCH.—This subject was brought forward by Mr. Fulcher, who said that not infrequently contracts were made with coolies by estates for the ensuing year while such coolies were still under contract with, and consequently under advance to, other estates. The legal aspect of the question apart, this practice was clearly reprehensible and unfair to the estates on which such labour was employed at the time these advance contracts were entered into. The following resolution, proposed by Mr. Fulcher, and seconded by Mr. Bisset, was passed :—

> "That, during the month prior to the annual settlement, which on the majority of estates was March, magistrates empowered in that behalf should make careful enquiries before attesting any contracts with coolies, and endeavour to ascertain whether such coolies were free, in order to put a stop to the practice now prevalent of coolies making advance contracts with estates while still under agreement with other estates."

(Signed) J. S. NICOLLS,
Chairman.

(„) F. W. F. FLETCHER,
Honorary Secretary.

TRAVANCORE COMBINED PLANTERS' ASSOCIATION.

THE SEVENTH ANNUAL MEETING OF THIS ASSOCIATION WAS HELD AT THE QUILON CLUB, ON SATURDAY THE 26TH FEBRUARY, 1921.

PRESENT:—Messrs J. R. Vincent, Chairman, Mundakayam Planters' Association, J. H. Cantlay, Central Travancore Planters' Association, J. S. B. Wallace, Kanan Daven Hills Planters' Association, Messrs. Harrisons and Crosfield, Ltd., by proxy, and L. A. Lampard, Honorary Secretary.

VISITOR:—Mr. L. H. Jacob.

Notice calling the meeting was read, and the Agenda was as follows:—

I. Honorary Secretary's Report.
II. Subjects for Sri Mulam.
III. Allotment of portion of Reserve Fund for benefit of Travancore Planters requiring help.
IV. Government and Firewood Rights on estates.
V. Election of Office-Bearers for 1921.
VI. Other business brought forward.

Mr. J. R. Vincent took the Chair.

The minutes of the meeting of 15th February, 1919, were read and approved.

Gentlemen,—This is the Seventh Annual Meeting of this Association, and I have to report another rather uneventful year. The membership of the Association remains at 10, as previously.

It is satisfactory to report that largely on our representations, two liquor shops—Kuttikal and Kalthurutty—have been abolished while a third—Azhachola—has been moved further away from Kulliyal Estate, and Government also advised that they hoped to effect the amalgamation of Pambanar and Arudai Arrack Shops, but I have not heard that this has actually been completed.

There has been a good deal of correspondence in connection with timber rights. I refer to the question of payment for timber removed from one Grant to another. As far as my official information goes at present, I cannot see that Government are in any way prepared to meet us in the matter. The offer to transmute a payment for timber as used into a lump sum payment does not meet the difficulty. I trust I am not out of touch with the present position, and would welcome any further information. This is a matter which requires most careful consideration, and I do not think should be allowed to drop.

This Association was approached with regard to the granting of land by Government to ex-service men. As far as my information goes the demand was practically negligible.

I should like to mention one matter that has been placed on the Agenda. You are all well aware of the present serious position of tea and rubber, and I am afraid that, if the present conditions continue much longer there is bound to be a certain amount of distress amongst Planters. We have a reserve fund of Rs. 1,200, and it has been suggested that a portion of this reserve might be set aside to meet any deserving cases. I trust this matter will be favourably considered.

The accounts are before you for your approval, and I do not think I have any further business to report. I now place my resignation before you.

TRAVANCORE COMBINED PLANTERS' ASSOCIATION.

INCOME AND EXPENDITURE ACCOUNT FOR 12 MONTHS ENDING 31ST DECEMBER, 1920.

	Rs.	A.	P.		Rs.	A.	P.
Postages and Telegrams	2	6	0	Subscriptions 10 Members at Rs. 25 ...	250	0	0
Stationery and Printing	0	9	0	Interest	46	10	5
Typist's Salary	25	0	0				
Excess of Income over Expenditure carried to Balance Sheet	268	11	5				
Total...	296	10	5	Total...	296	10	5

BALANCE SHEET 31ST DECEMBER. 1920.

	Rs.	A.	P.	Rs.	A.	P.		Rs.	A.	P.	Rs.	A.	P.
INCOME AND EXPENDITURE ACCOUNT—							CASH WITH MESSRS. HARRISON AND CROSFIELD, LIMITED—						
Balance and credit at 1st January 1920	1,092	3	1				On Deposit account ...	1,200	0	0			
Add—							On Current account ...	160	14	6			
Excess of Income over Expenditure 1st January to 31st Dec., 1920	268	11	5										
				1,360	14	6					1,360	14	6

Examined with books and vouchers, and found correct.

(Signed) C. A. POLSON.

QUILON, 23rd January, 1921.

(Signed) L. A. LAMPARD,
Honorary Secretary.

The accounts for the year ending 31st December, 1920, were passed.

The various Delegates discussed at length the subjects for Sri Mulam. The one subject in common was "roads," and, thanks largely to the presence of Mr. Jacob, the Executive Engineer for Quilon District, a good deal of useful information was exchanged. It is gratifying to note that the prospect of heavy repairs to the Koney-Punalur Road is a little nearer realisation. The Peermade Delegate brought forward the question of damage by elephants. It was agreed by the Delegates that these animals appear to be on the increase, and becoming very destructive. It was decided that the Delegates should support one another, and interview the Conservator of Forests on the subject. The prohibition of motoring on ghaut roads between sunset and sunrise was mentioned. The meeting was informed that this had been recently annulled in the High Range, but was still in force in Peermade, if not in other Districts. This point, also, was to be raised by the Delegates at the Sri Mulam Popular Assembly.

After some discussion on the allotment of part of the Reserve Fund for the benefit of Travancore Planters, it was proposed by Mr. Cantlay, and seconded by Mr. Wallace that Rs. 1,000 of the Reserve Fund be remitted to the South Indian Planters' Benevolent Fund, with the request that this Association be made a patron of the Benevolent Fund.

This resolution was carried, and, it was the opinion of the meeting that any deserving case from Travancore would be sure to receive the favourable consideration of the Executors of the Benevolent Fund.

The question of Government and Firewood Rights on Estates was discussed, and it was the opinion of the meeting that Mr. Mackie should be requested to bring the matter again before the Dewan for favourable consideration.

The election of Office-Bearers for the ensuing year was proceeded with, and Mr. J. R. Vincent was elected Chairman, Mr. J. H. Cantlay, Vice-Chairman, and Mr. L. A. Lampard, Honorary Secretary.

RUBBER JOTTINGS FROM SOUTH INDIA.

A South India correspondent contributes the following to the "Indian Scientific Agriculturist."

THE USE OF MACHINERY.

Signs are not wanting that, in the near future, a wider use of improved machinery will be necessary. Machinery to replace hand labour at the factory; machinery to replace labour on the field, and ultimately to largely cut down the present labour force. Thus the chief concern of the planter, the cause of innumerable worries and anxieties, will gradually diminish; and what would the planter not give to be rid of the many trials and the enormous expenditure entailed by the present day labour problems?

In this country Agricultural Engineering firms do not advertise their wares sufficiently: it is true in this Journal various kinds and patterns of agricultural machinery are advertised, but some of them are practically the only advertisements of the kind in India. Publicity is, of course, the only means of creating a demand; and publicity without a substantial backing of facts is useless. To create the demand demonstration is required, for the sums at stake are large, and where thousands of cooly labourers are employed very strong proofs must be forthcoming to convince the agricultural and planting industries that machinery will perform the work required of it as efficiently as hand labour, and at less expenditure. As a class, planters are not by any means sceptical or conservative; but they are not prepared to incur a large expenditure in experiments; and, if there are no convincing proofs to support the claims advanced for modern machines they will certainly be unwilling to conduct doubtful experiments. Therefore, it remains with firms, who wish to create the demand, to experiment and demonstrate the utility and convenience of operation of their machines. For this they must obtain a thorough working knowledge of the various agricultural industries and of the conditions prevailing in the districts of their prospective customers, in order to demonstrate effectively to them. The pushful salesman has an unlimited scope for his energy in this country, and before long the utmost capacity of his factory will be required to meet the demand. It is not only on Rubber Estates that Agricultural machinery, such as Tractors, Ploughs and Harrows may be used with advantage, but they may be used for cocoanut, paddy, etc. cultivation, with undoubtedly good returns for the expenditure. They will replace a vast army of cooly labourers, with the additional advantage that the human factor, always an unknown and uncertain quantity, is largely eliminated. Those of us who have had dealings with large numbers of cooly labourers will bear this out and agree that anything which will reduce or eliminate it helps towards efficiency.

Needless to say the choice of motive power should be well considered, as so many varied types of machinery are available. Naturally, our choice will lie on that which is least expensive, and yet will satisfactorily perform the work required of it. There is much to be said for and against the Internal Combustion Engine. The extensive use of oil fuel, both light and heavy, will surely raise its price in the future, and consequently we may look forward to an increase in the running costs of this type of motive power. Where water-power is available, as in many parts of South India, the greater claims of the Turbine call for consideration. It is surprising that there should have been instances where a form of water-wheel has been replaced by an Internal Combustion Engine of the Diesel and Semi-Diesel type, and in a few instances by Steam Engine. Also, surely the enormous quantities of water, running to waste might well be utilized by Turbines (Pelton Wheel).

Agriculturists would be well advised to consider the various forms of motive power, oil, steam, water and electricity. In this connection it is advisable to obtain expert opinion from an impartial source It must be borne in mind that the Internal Combustion Engine requires a mechanic to work it, and a cleaner to assist him, besides, the constant repairs and cost of fuel, which may rise higher in the future, are no meanitem. Again, there is always a certain amount of "periodicity" in the running of these engines which will never be eliminated; this means wear on belts and machinery. This is entirely absent on the Pelton Wheel, neither is there any necessity to stop the machinery for cleaning, for there is little likelihood of the nozzle, bearings, etc., requiring serious attention for a long time. In an Internal Combustion Engine there is always the chance of a piston ring or a valve stem breaking.

Many advantages might be enumerated but they are, of course, all dependent on a sufficiency of water at the correct height. It is interesting to note that, as is so largely the case with agricultural machinery, Pelton Wheels are unadvertised in South India.

THE SLUMP.

Rubber prices have declined alarmingly, what was priced at 2s. 3d. at the beginning of this year, is now priced at 1s. 0d., and worse still, there is an absence of demand at the price. The F. M. S. are faring even worse than South India since exchange went down. Estates planted with rubber about 1906 came into bearing from 1914 onwards, hence over-production (though some call it under-consumption) has set in. Perhaps, an outlet for the surplus may be found, but there will always remain the bogey of "over-production" before the industry. Many an estate has yet to produce double its present crop, and it is difficult to foresee what will happen then. It is probable that the Rubber Growers' Association's prizes will retrieve the industry's fortunes; however, it is too early to think of it. Rubber shares are declining, as is to be expected. Ceylon rubber prices are less than 8 annas per pound for even the first latex plantation crepe, which leaves very little profit for even the best yielding estates, whilst many of the poorer ones are closing down. Although the Indian rubber estates are faring badly, since yields are lower here, yet none have closed down up to the time of writing, and it is to be hoped there will be no necessity to take this extreme step. The only hope for the present seems to lie in the direction of restriction of crop. In time the demand will increase, but for the present we are unable to see how the 40,000 tons odd of raw rubber that is stocked in the warehouses will be consumed. The latest advices say that those who have agreed to restrict output are only bound to do so till the end of this year, and it must be considered that, until estates stop tapping during the wintering period, little reduction will be effected, also this estimate will in all probability be exceeded next year, and again the same bogey must inevitably crop up. As giving an idea of the situation, it is interesting to know that last year's rubber crop was almost 3½ times that prior to the War; and, in the ordinary course of events the next few years will see a considerable increase on this year's yields. It is evident on all sides that the gravity of the situation is not duly appreciated, and until that is so and combination is effected with a view to meeting the situation fairly it is obvious that we must look to the future with apprehension.

MANURING OF RUBBER.

Apparently the rubber tree is fastidious, sometimes it prefers lime, sometimes nitrogen, and again potash and phosphoric acid. If we examine what has been done in this direction in rubber growing countries, we find that in Ceylon phosphoric acid gave good results over a lengthened period, and that nitrogen gave a large increase in the first year, but somewhat less subsequently; whilst in India potash gave the best results. The reason for this difference in the results is due probably to the treatment of the soils and the deficiency or otherwise of various plant foods. Lime alone is not a complete manure, nor for that matter are the others, consequently it would be incorrect to say that such and such a manure is the best. Undoubtedly the particular form in which the manure is applied has a considerable bearing on the ultimate yield, since soils and conditions vary so much.

Bamber says that 100 eleven year old Hevea trees in an acre contain in pounds :—

Lime	... 235	Soda	... 174	100 pounds of dry material contains 3
Magnesia	... 73	Phos. acid	... 81	pounds of mineral
Potash	... 144	Sul. acid	... 31	matter.

Mr. R. D. Anstead, Deputy Director of Agriculture, Planting Districts, says that the average analysis of Hevea Latex shows the following : —

Caoutchoue	32·00
Nitrogenous matter	2·03
Mineral	9·07
Resinous	2·03
Water	55·56
	100·69

The nitrogenous matter is present in the form of albuminoids, and the water content varies considerably with the climatic conditions. It is evident that very little is taken from the soil to form latex, and therefore manures are chiefly utilised in the development of the tree, only a negligible quantity being removed in the form of latex.

As half the quantity of latex consists of water, the conservation of moisture in the soil is of vital importance.

GREEN DRESSING.

As soil and moisture conservation is dependent on the character of the soil, a surface soil rich in humus is the first essential. An interesting attempt is being made on a neighbouring Rubber Estate to grow a green dressing of Tephrosia Candida (Boga Medeloa) in order to prevent soil wash. The plants have grown successfully, and produced large quantities of seed. This green dressing will certainly kill weeds, and will conserve the surface soil to some extent.

It is a great pity that though in theory a fine tilth is known to help in retaining moisture, yet in practice it seldom receives the attention that it deserves. Since the Tractor has come to stay, the obstacles in the path of successful cultivation will be overcome, and there will be less difficulty in keeping the surface soil in fine condition, which will prevent evaporation during the dry hot weather months. Tractors will be found unsuitable in some tracts, owing to broken and hilly ground, but on the flat lands they could be used with very great advantage, and the cost will not exceed that of hand labour.

Ploughing, annually or bienially, immediately before the close of the monsoon while the soil still retains moisture, is advisable. Harrowing once a month during the hot weather will then conserve the moisture, and naturally tapping will not harm the trees to the same extent as when moisture is deficient.

With good drainage, harrowing before the close of the rains, during the hot weather months, and manuring with complete manures, satisfactory results should be obtained. Economy and efficiency are the present day watchwords, and, if they are to be observed, machinery will have to replace labour to a greater extent than hitherto in the rubber industry.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore, 16th March, 1921.

SECRETARY'S REPORT NO. 11.

1. AUXILIARY FORCE ACT, 1920.—G. O. No. 55, Public, dated 5th February, 1921 transfers the Headquarters of the Advisory Committee for the Nilgiri and West Coast Military Area from Ootacamund to Coimbatore, and appoints Mr. F. B. Evans, I. C. S. as a member of the Committee in place of Mr. G. W. Wells, I. C. S.

2. RUBBER MYCOLOGIST.—The following intimation has been received from the Government of Madras :—

"Mr. H. T. Ashplant expects to be able to sail from Mombassa on or about the 19th April, and to take up his duties on the 1st or 2nd May next."

3. SHIPPING FREIGHTS.—Intimation has been received that the rate for Tea and Rubber from the Malabar Coast to London has been further reduced to 65sh. per shipping ton, less the usual rebate of 10%.

4. CONDITIONS OF ESTATE LABOUR.—Miss Broughton, who has been appointed by the Government of India to investigate the conditions of Labour, both Factory and Agricultural, more particularly as regards women and children, in view of the International Labour Conference at Geneva, accompanied by Mr. T. E. Moir, Commissioner of Labour to the Madras Government, interviewed the Secretary on the 11th instant, to enquire into the condition of labour on Estates. In this connection the Superintendent of Census Operations has called for information regarding the economic condition of labourers, and the District Associations in the Madras Presidency have been asked to collect the information called for.

(Signed) C. H. BROCK,
Asst. Secretary.

INDIAN ARMY RESERVE OF OFFICERS.

The main principles of the new conditions in service in the Reserve of Officers have now been determined.

Officers will be admitted to the several branches of the new Reserve on definite establishments, and after admission will be liable to undergo periodical training, either with regular units and formations, or else with units of the Auxiliary Force.

An officer of the reconstituted Reserve will at his option either :—

(*a*) serve in the ranks of a unit of the Auxiliary Force, or

(*b*) be treated as a supernumerary officer of such unit, or

(*c*) serve in a unit of the Auxiliary Officers' Corps, ordinarily in the ranks.

This last course will only be possible where such a unit is formed. In, the Madras District no unit of the Auxiliary Officers' Corps is being formedf as ample scope exists for legitimate use of the services of all members og the A. O. C. within the establishments of Auxiliary Force Units.

AUXILIARY OFFICERS' CORPS.

This Corps is normally no more than a register of names carrying certain obligations on the individual. Members of the A. O. C., who also hold commissions in the I. A. R. O., as a certain number will do, must be regarded as supernumerary to the establishment of the Auxiliary Force Unit in which they elect to serve in normal times, since their services may not be available with the unit in emergency.

In cases where members of the A. O. C. wish to serve together, they can best serve the interests of the Force and the State by forming themselves into sub-units, such as Lewis Gun sections within the existing establishments of Auxiliary Force Units. Such sub-units will, of course, be liable to disintegration in a supreme emergency, but in normal times they will form most valuable nuclei within their Auxiliary Force Units.

Alternate-Day Tapping.

Mr. H. G. Pinching. Mycologist, R. G. A., speaking on alternate-day tapping at the Lower Perak Club, Teluk Anson, said under normal trade conditions the object which must be behind any system of tapping must be the harvesting of the largest possible crop at a minimum cost of production, thus resulting in the greatest possible profit on the total crop. So long, therefore, as the plantation rubber growing industry wished to hold its position as a commercially sound enterprise, attention must be paid to the financial aspect of tapping as well as to that of the health of the trees. Tapping was undoubtedly an abnormal process as far the trees were concerned, and placed them under abnormal and unnatural conditions. It was very important, in considering the relative values of daily and alternate-day tapping to make sure that they were fully acquainted with all the particulars of each system in order to be certain that the results with which they wished to deal were really comparable.

The fact that certain estates had adopted alternate-day tapping over part or all of their fields and had found that after two years the yields from such alternate-day tapped areas were the same or even greater than were previously obtained from them when they were tapped daily was not necessarily a proof of the superiority of alternate-day tapping. Alternate-day tapping had been put into practice by several estates for various reasons and it was advisable to know the real reason for an estate adopting this method before considering the results obtained by that estate.

Mr. Pinching added: "Whether alternate-day tapping is better than daily tapping from a financial standpoint depends upon three factors which are correlated. I detail them in the order of the power which they have of affecting the situation.

1. Per cent of the daily tapping crop as produced when the trees are tapped on alternate days.

2. The selling price of rubber.

3. The cost of the tapping labour.

Where one could guarantee a return from alternate-day tapping as high as 90 per cent of the crop daily tapping with normal prices prevailing (say 75 cents) then the profits from alternate-day tapping would equal those from daily tapping, in consideration of the benefits bestowed on the trees by alternate-day tapping which I will enumerate in a few minutes, the alternate tapping must be the better.

"With a small per cent of crop from alternate-day tapping (say 60 per cent) then this system will never give the same profits as daily tapping, though as the selling price decreases the advantage of the profits from daily tapping over those from alternate-day tapping gradually decreases also until a point is reached where the profits from either form of tapping are equal—that is nothing when the crop from alternate-day tapping is about 74 per cent of that from daily tapping, and the selling price about 35 cents.

"The greatest question, you will therefore understand, is what per cent of my crop from daily tapping can I expect from alternate-day tapping? With the present price of 40 cents a lb. alternate-day tapping giving 60 per cent of my daily crop will not pay. Alternate-day tapping commences to pay when I can obtain 75 per cent (approximate) of my daily tapping prices.

"The last point with which I wish to deal are the advantages which are said to accrue to the trees by practising alternate-day tapping. The bark consumption with alternate day tapping is slightly more than half that with daily tapping owing to the unavoidable drying of the tapping cut in the two days. The question of the incidence of disease on the trees, however, has been brought forward in support of alternate day tapping and it has been stated that trees on alternate-day tapping are less proven to be affected by Black Thread and, more especially, Brown Bast It is possible that the less frequent exposure of delicate cortical tissue in alternate-day tapping reduces the risk of infection by the fungus *Phytophthora meadii* which causes Black Thread.

THE PRINCIPLES OF AGRICULTURE.

Amelioration and Improvement of Land.

This is the seventh of valuable series of articles appearing in "The Planter."

If we consider for a moment the various factors upon which we have found the fertility of the soil to depend we will see that they are closely interconnected the one with the other. The supplies of air and water in the soil and the temperature of the soil are inter-dependent to a large degree, and a change in any one of these factors will generally produce a change in the others and these changes in turn will affect the supply of food at the disposal of the plants. There is also a close relationship between the composition of the soil and the plants growing on it. Virgin land, which is covered with its native vegetation appears to alter very slightly and very slowly in composition. The plants, while growing, accumulate mineral salts from the soil, such as nitrates, phosphates, etc, organic compounds from the air and then when they die their constituent parts are added to the soil Some of the contents of the soil in virgin lands are washed away in the drainage water while other are broken up by bacterial action into gaseous compounds which are dissipated into the air. The poorer the soil the smaller these losses, but they increase as the soil becomes richer until a limit is reached when the annual gain to the soil is equivalent to the annual loss. A state of equilibrium is thus attained and the level at which this stage occurs depends upon the condition of the soil, i e., its composition, position, climatic conditions, etc. A change in any one of these factors produces a change in the level of this state of equilibrium. A virgin soil cannot therefore continue getting indefinitely richer in nitrogenous and organic matter if the soil is untouched.

When virgin land is brought under the plough, its native vegetation removed, and it is used for raising crops then its periodic gains from its native decaying vegetation are practically stopped Not only does the land receive no further additions of organic matter, but its losses are greatly increased, and so the fertility of the soil is reduced. The opening up of the soil by the plough or spade allows rain water, carrying dissolved gases, to penetrate more readily its interstices; air can more easily enter between its particles, and decomposition more easily occurs. The water washes out some of the valuable constituents of the soil, from a plant food point of view, and the gaseous products of the decompositions are lost. The soil thus becomes poor, but this impoverishment of the soil does not go on indefinitely until the soil is reduced to an accumulation of insoluble mineral particles. As the soil becomes poorer the rate of loss decreases until a point is reached at which the rate of loss is equal to the rate of gain of nitrogenous organic matter to the soil resulting from the natural reactions which take place in the soil. We thus see that a new equilibrium level of fertility of the soil is reached which remains constant so long as the soil continues under constant conditions. As with the high fertility level of the virgin land, so this low level of fertility cultivated land depends upon the same factors, viz , composition of soil, climate, etc.

The fertility of a soil therefore varies between two limits—a higher limit when the soil is kept under a permanent cover such as grass and a lower limit when it is kept permanently under the plough. In connection with land permanently under the plough the cultivator can attain any fertility level between the higher and lower levels by carrying out one or more of the various agricultural practices. The question of a higher or lower fertility level is not wholly a question of the percentage composition of the soil i e., the percentage of nitrogen, carbon, etc. it contains. The physical texture of the soil is a very great factor in deciding the fertility level of the soil, and one could increase the quantity of nitrogen, potash, etc. in soils under certain conditions without raising their fertility levels one iota.

No soil, however rich it may be now, is inexhaustible when it comes under cultivation. We have all heard of the rich wheat lands of North America, from which crop after crop of wheat could be raised year after year without the addition of any manure being necessary. When these virgin soils were first cultivated their fertility level was very high, but continuous cultivation was lowered this level. At the outset these lands contained more plant food than the crops required, and much of the excess plant food was washed away in the drainage water or dissipated into the atmosphere. The grain raised on these lands was sold, and the straw was burnt so that the first years of cultivation were years of practically all loss to the soil, and no gain. Eventually, however, the lower fertility equilibrium level was reached, and in many cases the impoverished soil was not fertile enough to raise profitable crops, and unless manuring has been carried out to invest the soil with some, at least, of its lost constituents, the land has become useless. There are many derelict farms in the United States of America which remain witnesses to the folly of continuous cultivation without returning to the soil some part of those constituents which cultivation has been the cause of its losing The extravagance of this form of farming will be apparent to all, for so much of the loss from the soil has been sheer waste and did not enter into the crops harvested. It must always be remembered that it is not the demands of the crop in growing which exhaust the land, but the continuous cultivation. Of course one could get such lands partially, if not completely, to recover by allowing them to remain fallow for a number of years.

We will briefly consider some of the agricultural processes by which the fertility level of soils under cultivation can be raised. These processes may be enumerated as follows;—drainage, irrigation, clay burning, liming, fallowing and manuring

Drainage is one of the chief and oldest processes by which certain lands have been improved and has been practised over large areas both in the United-Kingdom and in other agricultural countries. It has been found that the degree of wetness of many soils decides their fertility limits more than anything else, and soils containing large surplus supplies of water may be absolutely sterile from a plant cultivation point of view. Drainage is the artificial withdrawal of these surplus supplies of water from the soil. It has been already stated in previous chapters that a certain amount of water within the soil is necessary for the growth of plants, yet the presence of too large quantities of moisture may exclude other necessary substances from the soil, such as air, and thus prevent the many life processes, necessary for the well being of the plants, from being carried on. The cost of draining land at Home, using white manual labour has been usually so great of late years that the process has been resorted to only to a comparatively limited extent. The advent of motor and steam power worked machinery into agriculture may however permit of more land drainage being carried on.

Land which is water-logged cannot be retained under the plough, and therefore if it is necessary to keep this land under cultivation, drainage becomes absolutely necessary. As a result of this work one cannot always look for immediate returns or at least returns sufficient to cover the outlay. It is possible profitably to use grass lands which contain more than would be permissible were these lands required for cultivation purposes, and though drainage would improve such lands yet the improvements effected might not justify the expenditure incurred by the drainage. The old method in England for reducing the amount of surplus water in a soil consisted in throwing the land into high ridges with deep furrows between them. This often entailed a considerable waste of land for in many cases the furrows were so wet that nothing would grow in them and only the ridges could be employed.

A consideration of the physical aspect of the question of drainage will show that the withdrawal of the surplus water from between the soil particles will cause vacant spaces to be left which are immediately filled with air as the water leaves. The presence of abundant supplies of air between the particles at once creates new conditions in the soil. Organic matter, such as manures, more rapidly decays and thus becomes more quickly available for the use of the plants while the roots of the plants are able to obtain a plentiful supply of necessary oxygen. In water-logged soils nitrification, which was discussed in the last chapter, is practically at a standstill. Wet lands are cold for water takes much heat to raise its temperature or, to express it in correct scientific phraseology, water has a high specific heat Further it takes a large quantity of heat to change water into water vapours, and thus when soils containing large quantities of water commence to "dry," i e., the water begins to evaporate, the heat for this evaporation is partly drawn from the soil particles, and hence the soil is cooled.

Drained lands are raised in temperature by rain owing to the fact that the rain water, being comparatively warm, raises the temperature of the soil through which it percolates. In the case of water-logged soils the rain water is unable to penetrate but merely escapes by running over the surface In temperate climates it is often found that during winter young plants are more or less thrown out of the ground where that soil contains large quantities of water. Sometimes the ejection of the plants from the ground as in the case of wheat and clover plants, so spoils the plants that another crop has to be sown in their place. This ejection of the plantlets from the soil is brought about by the conversion of the water in the soil into ice, which is accompanied by an increase in volume. It is common experience that the ground is raised during the continuance of frosts, but when the temperature of the earth is raised and the ice between the particles of the soil is turned into water then the ground sinks back to its original position. The small plants which were raised with the frosts from their previous positions are often left with all their roots above the surface of the soil when the frosts are over and the ground sinks once again It will be readily appreciated that the greater the amount of water in the soil the greater the increase in volume of the soil when the frosts cause the water to freeze. Further it will be understood that a frequent alternation of frost and thaw during winter will do more damage from this point of view than a long continued frost.

It has been already stated in a previous chapter that the drier and the warmer the soil, the earlier the harvests; draining therefore assists in obtaining this generally desirable state. The earlier harvests are not due only to the fact that the drier lands can be sown earlier but also, since they are warmer, the plants mature during the summer more quickly. A greater variety of crops may be grown on dry land than on wet land. Take for example roots. It is difficult to grow these on lands which are overwet, and even if one is successful in raising a satisfactory crop then the roots have to be taken off the land to to be consumed, for the animals cannot be folded on a land which is saturated with water. Stock kept on dry lands or properly drained lands are much healthier than when kept on damp land. Foot-rot, attacking sheep, is chiefly caused by damp land growing rank herbage and having a soft turf. The "liver fluke," Distoma hepaticum, must pass through one necessary part of its existence in a certain small snail living either in fresh water or in swampy parts. Among calves the nematoid worm, Strongylus filaria, causing "husk" frequents low, marshy and undrained lands. Further, stock thrives better and puts on flesh much faster on a dry warm soil than on a cold wet land. Cattle, after filling themselves, would, in the former case, lay down and chew their cud contentedly thus resulting in more flesh and milk On the cold wet soils, however, the cattle would stand shivering losing, rather than gaining flesh.

One great advantage of efficient draining in the case of arable land is that the land can be more easily and more thoroughly cleaned. Most rubber planters will appreciate the truth of this from their own experience, for all will at some time or other have encountered a wet patch of land on the rubber estate which took far more time and trouble to keep clear of weeks than the drier lands.

The second on our list of agricultural processes employed to raise the fertility limit of soils is "Irrigation." This is the exact opposite of drainage and consists of leading water on to a land in place of off it. This process can be only employed under somewhat limited circumstances. In the first place a supply of water in sufficient quantity and of suitable quality must be easily obtainable. Further, irrigation is only successful upon land of a somewhat special character. It is not much good irrigating a land that is very stiff and impervious to water where all the water poured on to it merely runs over the surface. To obtain good results the soil must be sufficiently porous to allow a large amount of the water to percolate through its mass although it is not necessary that all the irrigated water should escape only by subsoil drainage. Generally speaking a sandy or gravelly type of soil is the most suitable for irrigation purposes If the land is too stiff it is likely to become sour, and after some time infertile.

Over large areas of the world the rainfall is insufficient and thus recourse to irrigation is necessary. Two points have to be remembered in ascertaining the best way to irrigate crops; (1) excessive watering has secondary injurious effects on the soil, such as the deterioration of the physical condition, the accumulation of alkali salts, or the formation of toxic reduction products; (2) the requirements of the plant are not always the same, more water being required during the period of active growing than during germination or ripening. In Great Britain the chief benefit from irrigation is derived from the substances which are either dissolved in or are suspended in the water, and are thus deposited in the soil, tending to change its physical condition. In tropical countries, on the other hand, irrigation is undertaken chiefly for the purpose of supplying the plants with water necessary for their growth. Thus the water in this case may contain little or no substances in suspension or solution. The theory of irrigation is shortly stated as follows. The water necessary for the growth of the plants is supplied, and as mentioned above, this is the main object in dry countries. The temperature of the soil is regulated to some extent by irrigation, being made cooler in summer and warmer in winter. All water is not suitable for irrigation. Water to be serviceable must be free from acids and plant poisons. In judging the water which one proposes to employ for irrigation purposes one should examine the kind of plants growing in or by it. If these plants are such as the watercress, speedwell, crowfoot, etc. then one might fairly safely conclude that the water was suitable, but if, however, the plants are of the sedge, rushes and reed types it is very probable that the water is unsuitable.

(To be continued)

NOTES AND NEWS.

Planters' Classes.

The North of Scotland College of Agriculture again issues a prospectus of special classes in Summer Term, 1921, for Planters home on leave, to be held at Marischal College, Aberdeen. The Secretary, U. P. A. S. I. will be glad to give any further information which may be desired, and copies of the prospectus may be obtained from him on application.

A Tea Market in the Argentine P

We have received a request from an Importer in Buenos Ayres who wishes to get into touch with tea planters with a view to obtaining direct shipments of tea on a large scale to the River Plate. We shall be glad to give his name to any bonafide enquirer.

Foxy Coffee.

A correspondent suggests that "H. C.", who wrote to us the other day on this subject, should try the following experiment:—" Pick ripe and over-ripe fruit, dry and pound. He will find that the bean from the ripe has a parchment colour, whereas that of the over-ripe has a reddish tinge, so that it is the over-ripeness of the cherry that discolours the bean. Over-fermenting gives the bean a dull colour. There is no difficulty in getting the saccharine matter off the bean in the cold weather. The coffee only requires a few more hours to ferment, the same as in fermenting tea. I write from 44 years' experience."

Coffee Prices.

Our Coimbatore friends, Messrs. Peirce Leslie & Co., report a firmer tone locally. Business has been done at from Rs. 47 to Rs. 50 per cwt. ex-bags ex-works. Our coffee cable shows a decline in values, and we are informed that London prices, it is feared, will decline still further when large quantities are offered.

Ceyon Tea.

The following figures showing exports of Ceylon Tea by rail to Stations in Southern India *via* Talaimannar are taken from the "Ceylon Chamber of Commerce" Weekly Price Current, dated 21st and 28th February, 1921.

	lbs.
Cannanore	2,400
Trichur	1,200
Tirur	4,275
Trichinopoly	1,260
Badagara	3,520
Negapatam	105
Total ...	12,760

Freights.

Coffee is now being shipped from the Coast to London and Antwerp at 57s. 6d. per steamer ton, less 10% rebate to contractors. Marseilles, Rotterdam, and Hamburg, 64s. 6, and Havre and Dunkirk 85s.

Rubber Prices.

" The India Rubber Journal's" correspondent " Macson" writes under date 17th February, 1921 :—

> " Our market has maintained a reasonable advance, not in any way over-valuing the clearer outlook which the recent settlements have given.
>
> " The Goodyear delayed meeting is merely a hold-up by the smaller creditors, who hope to get bought out. The main features of the settlement, as previously reported, are fixed.
>
> " Reports from Continental markets are a little brighter. France is slowly tackling a difficult problem. Finance and trade are gradually emerging from their difficulties. The conditions in Southern Germany are more hopeful, in as much as the food conditions have improved; there is a desire to be up and doing.
>
> " New York has not followed London's recent rise, quoting only 18¼ cents for spot sheets.
>
> " Singapore is anxious to sell at any slight advance a buyer can be induced to give. Spot sheets 10½d."

The U. P. A. S. I. Gazette.

Mr. W. Egerton, Chethalli, Coorg, becomes a member of the General Committee, U. P. A. S. I. *vice* Mr. P. G. Tipping resigned.

FOR SALE.

Br : Aus : Cob—15 Hands. Rising 7—up to any weight. Excellent Hack. Carries a Lady. Should make a good trapper. Sold for no fault. Price Rs. 1,200.

Apply :—E. T. C. Farr,
Koney Estate, Koney P. O.,
Punalur, (Travancore.)

WANTED.

TEA AND COFFEE PLANTERS.

Send samples of Stocks and Prices, and we will obtain best offers. F. O. R. Madras. Packets and Bulk. We can supply Best Pruners on Earth.

K. & Y. Bros.,
58/59, Rattan Bazaar Row, Madras,
Exporters and Importers.

MISCELLANEOUS.

J. B. FORSTER & Co.

Specialists in concentrated Mixtures and Tablets for coolies.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" Coffee.

(BY CABLE.)

LONDON, DATED 18TH MARCH, 1921.

105s. per cwt, Market Quiet.

THE TEA AND RUBBER RESTRICTIONS.

We have received a copy of the Proceedings of the Fortieth Annual General Meeting of the Indian Tea Association, which was held at Calcutta on the 11th March last. The Chairman's speech is of some interest dealing, as it naturally did, with the conditions of the tea markets to-day, conditions which Mr. Gordon considers unparallelled in the history of the industry, the financial position he thought never having been so serious as at present. He does not have to search far for a reason. We are suffering, he said, from a state of over-production, owing to the cessation of demand from Russia, and cannot look for prosperous times until Russia re-enters the market, or demand approximates supply. Mr. Gordon was speaking, of course, before the recent announcement of the signing of a trade treaty with the Soviet Government, an event which, Reuter reports, had the immediate effect of producing an order for 3,00,000 tons of English coal. Some time back, when this treaty was last on the point of being concluded, we were told that one of the first things the Russians would buy would be Tea. Let us hope we shall hear of an order being placed for a 100 millions or so, as soon as our Bolshie friends have got the coal with which to boil that necessary ingredient-water. Meanwhile, restriction of crop, says Mr. Gordon would undoubtedly improve the position, and a writer in the Association's Scientific Department Quarterly Journal says the best way to restrict is to abandon a portion of your area. It is the opinion of many that the failure of the restriction proposals for 1921 is most unfortunate for the industry, but it may well be that it is unfortunate only from the point of view of showing a lamentable but proverbial lack of unanimity among planters. After all, the Russian situation is not exactly obscure to the average intellect, and there is no reason whatever to infer that the treaty comes as a surprise. What could be more natural than that a man should hold on in the eternal hope, ever present in the planter's breast, that the situation would improve, a hope which has been justified in the announcement of the Anglo-Russian Agreement. When we couple this with Mr. Gordon's own statement that the recent fall in exchange and reduction in ocean freights will mean a considerable reduction in our working costs, we see, without any undue stretching of the imagination, a possible, nay, probable reason for the attitude of the non-restricters. Let us but hope that they will be justified in the event, and that the immediate future will bring balm to the worried chairmen of Planting Associations.

The unanimous demand all over the country for the removal of the Export Duty on Tea is another instance of where the industry is justly entitled to relief under the present depressing conditions. Mr. Gordon made his points most strongly on this matter, emphasizing the unsoundness economically of this form of taxation, the advantages it gives to our competitors, and the fact that it is an indirect tax on labour, the principal expenditure in connection with the production of Tea being the payment of labour and our financial resources being reduced by the extent of the amount of duty paid. Here again the non-restricters have probably had in view the probability of a saving on costs of production by the removal of this tax which must surely come, however reluctant the Government may be to remove it, and have thus arrived at a "carrying on" position by saving in the aggregate a considerable portion of their expenditure. Reduced freights, fall in exchange, removal of the Export Duty, and modified restriction by finer plucking, not to mention the cheapening latterly of good grains in this country—certainly in Madras,—must have altered the point of view of quite a considerable body of planters, particularly the private proprietor. With the possible Russian demand on the horizon, the outlook is decidedly rosier.

The amendment of the Tea Cess Act, by which authority has been obtained to levy a maximum of eight annas per 100 lbs. of tea exported, is generally agreed upon as a pressing necessity if we are to improve demand by establishing new markets. It is proposed to request Government to increase the cess to four annas per 100 lbs. for the present, and it is hoped this will make available sufficient funds to admit of propaganda work being commenced on the Continent in a systematic manner at no distant date.

So much for the tea restrictions as they strike our Northern friends. The Rubber restrictions have yet to make themselves felt on the home markets, but that they have influenced men's minds in the East is evident from the following message cabled by Reuter on the 7th March to the "Straits Budget":—

> "It is estimated that January's outputs by estates members of the Rubber Growers' Association who agreed to restriction have fallen 30 per cent. It is understood that a Government scheme for assisting the industry in Malaya has been referred to the Colonial Office. The official decision has not yet been delivered. The prospects of the scheme being a real service to planters would seem, says the *Times*, to be jeopardised by the delay. It is reported that such drastic economies have been effected in Ceylon that many estates can pay their way temporarily even at present prices, consequently Ceylon Companies are content to abide by the original 25 per cent restriction plan."

The last sentence is particularly illuminating, and we may repeat what we have said above regarding the tea position. There will never be unanimity among Rubber planters on this point; and, the factors mentioned as having reduced production costs in tea applying equally forcibly to Rubber, it is only natural that Ceylon should rest content with the original 25 per cent restriction basis. Circumstances have changed so completely that no one can be blamed for going back to some extent on what they have said, done or promised in the recent past.

SHEVAROY PLANTERS' ASSOCIATION.

Proceedings of the Annual General Meeting of the Association, held at the Victoria Rooms, on Thursday, 17th March, 1921, at 2 p. m.

PRESENT.—Mrs. C. G. Lechler, Messrs, S. M. Hight, Rev. C. Studer, V. L. T. Drapes, Rev. Father Capelle, W. I. A. Lechler, L. Hight, C. Rahm, C. D. Ryle, H. S. Dickins.
Visitor—Mons : E. Sice.

READ NOTICE CALLING THE MEETING.—Read and confirmed proceedings of Committee Meeting, held on 17-2-21. The Honorary Secretary read his report for the year 1920-21. He issued a printed sheet showing accounts for the year 1920-21, audited by Messrs. C. Studer and C. Campbell. The accounts were accepted and passed, and it was unanimously decided :—" That in view of the large surplus balance carried forward to 1921-22, that existing subscriptions be reduced, making it an all in subscription of 1 5 per acre for 1921- 22" U. P. A. S. I. Budget for 1921-22 was discussed in committee. It was decided that this Association agree to pay the proposed enhanced subscription of Re. 1-2 per acre on coffee for 1921-22.

ELECTION OF OFFICE-BEARERS, 1921-22.—Mr. H. S. Dickins placed his resignation on the table, and asked the Meeting to elect an Honorary Secretary in his place ; he thanked the Committee and Members for their support during his term of office, and said that heavy press of private work caused him to resign. Proposed by Mr. S. M. Hight and seconded by Mr. V. L. T. Drapes :—" That Mr. Dickins be elected Honorary Secretary for 1921-22, and that he be asked to reconsider his resignation." Mr. Dickins thanked them for the honour, but said it was quite impossible for him to continue as Honorary Secretary for the reason stated. As no one present was willing to take up the secretaryship, Mr. Dickins was asked to continue in office till 31st March, and hand over to Mr. W. I. A. Lechler, present Vice-Honorary Secretary, who would call a General Meeting to elect an Honorary Secretary.

The existing Committee was re-elected :—Messrs. H. M. Hight, Capelle, C. Rahm, W. Rahm, V. L. T. Drapes, C. D. Ryle, W. I. Lechler, and H. S. Dickins (Salem District Board Member).

Labour Committee :—S. M. Hight, Rev. Father Capelle, and H. S. Dickins.

Members on General Committee, U. P. A. S. I :—Messrs. V Drapes and H. S. Dickins.

AERIAL CABLE PROJECT.—Mons. E. Sice addressed the Meeting, and answered numerous questions, pointing out the saving of time and expense over existing mode of transport, showed Members very interesting plans and illustrations of how the cable would look when completed. The Meeting unanimously agreed to support the scheme.

ASSOCIATION AT HOME TO THE DISTRICT.—Rs. 250 was sanctioned out of Association funds for this purpose, and the matter was placed in the hands of a Sub Committee.

Mr. C. D. Ryle thanked Mr. Dickins for his hard work and interest he had taken in bringing the Association to its present efficient state. He did so on behalf of members present and absent.

With a vote of thanks to the Chair, the Meeting terminated.

(Signed) H. S. DICKINS,
Honorary Secretary and Chairman.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore, 23rd March, 1921.

SECRETARY'S REPORT NO. 12.

1. EAST COAST RECRUITING.—The Executive Committee have decided that no assistance can at present be given to any planters visiting the new Labour Division, and, until such time as the Committee have decided otherwise, they request all those concerned to leave the whole work in the hands of the Superintendent.

2. LOCAL BRANCH, R. G. A.—The Executive Committee of this Branch have elected the following gentlemen to fill the existing vacancies on the Committee :—

Mr. J A. Richardson, M. L. C., and
Mr. J. Mackie.

3. GENERAL MYCOLOGIST STATION.—Mr. G. A. D. Stuart, I C. S. is visiting the Annamalai District on the 26th instant, in order to visit the various sites proposed for the General Mycologist Station, and to select the most suitable one.

4. S. I. P. BENEVOLENT FUND.—I have much pleasure in acknowledging the receipt of a donation of Rs. 1.000 from the Travancore Combined Planters' Association, which entitles that Association to become a patron of the fund. This is the first patron to the fund under the new rules.

(Signed) C. H. BROCK,
Assistant Secretary.

NOTES ON INTERPLANTING TREES IN COCOANUT ESTATES,

BY

C. X. FURTADO.

THERE are certain views entertained by the cultivators of Goa about the likings and dislikings of cocoanut palms to certain trees. At first I treated these beliefs of the cultivators as mere myths and superstitions, and it seemed to me then that I was right in doing so. But my subsequent knowledge and observations on this subject, however, created in me some doubts, and a doubt, we know, if assisted by the desire-to-know, is very often a germ of knowledge and an aid to progress. I therefore naturally became interested in this subject, and, though I was not in a position to make experiments by growing them, in identical conditions, yet I was, to a certain extent, able to appeal to the plants themselves for the truth ; for I had ample opportunities of noting the effects of the interplanting of trees in the cocoanut gardens of Goa, where nearly always various sorts of trees are allowed to grow in among the cocoanuts either for their fruits or as windbreaks, supports to the palms partially bent by winds, etc. As a result of these observations, I have been able to satisfy myself that some trees do have good, bad or neutral effects on other trees, and have been able to make a list of some of those that influence the cocoanut palms. I may add here that my opinions as to the behaviour of the trees mentioned in the list below are also in agreement with the observations made by many of the educated cocoanut estate owners in Goa with whom I had opportunities to talk over this matter.

Before going to the catalogue of the trees, however, a few words in support of growing trees in the cocoanut gardens of Goa seem desirable, so that some, who do not know the climatic and soil conditions under which the cocoanuts are grown in Goa, may not be led by the opinions of foreign experts on the subject into condemning the practice entirely.

The cocoanuts in Goa are grown usually on lateritic or sandy alluvial soils, which, in consequence of their open nature and also of hot burning sun, retain very little humus, an element of no little importance to the palms. The sub-soil is found to be very often compact and to contain too much moisture, so that even the damp sub-soil-loving cocoanut palms suffer very much from the detrimental excess of water. Now certain deep-rooted trees, feeding as they do upon a layer of soil much lower than that on which the cocoanuts do, not only do not do any harm to the palms, but on the contrary benefit them in various ways, especially doing the role of the big open drains commonly seen in the cocoanut plantation of Goa. The trees pump the sub-soil water up into the air through the stomata of their leaves, removing thereby the objectionable excess of moisture which is responsible for so many pathological disturbances in the palms; and making the surrounding atmosphere moister and cooler than it originally was—conditions very conducive to the vigorous growth of palms. The roots, moreover, forcing their way deep into the sub-soil, tend to make it less compact. The foliage, too, that rots in the rainy season goes to add to the humic contents of the soil, thus increasing the power of holding capillary moisture in the surface soil and of preventing the loss of plant food elements from the soil by leaching—factors which are of great consequence in all the hot countries which, like Goa, receive seasonal and torrential rains. Besides these advantages of interplanting trees in a cocoanut estate, there are others too numerous to be included in this short article, not to say of their effect on the distribution of rainfall, breaking the force of winds, keeping the soil cool, and checking many pests and diseases of the palms in question. Care should, however, be taken to make a selection of only such trees as would sympathise with the cocoanuts, and especially to prevent them from overcrowding and overshadowing the palms by judicious pruning and by maintaining a reasonable distance between them; otherwise the straightness, the vigour and the productivity of palms will be very much affected.

In the following list of trees the botanical name is followed by its name in English wherever possible. The scientific and English names have been mostly taken from DALGADO'S *Flora de Goa e Savantvadi*.

I—Undesirable Trees in a Cocoanut Garden.

1. Thespesia Populnea, Correa—Portia tree.
2. Tamarindus Indica, Linn,—Tamarind-tree.
3. Tectona Grandis, Linon—Teak.

4. Bombax Malabaricum, D. C—Red silk Cotton tree.

5. Anarcadium Occidentale, Linn—Cashew tree

6. Sterculia Fœtida, Linn—Poon tree.

9. *Zizyphus* Jujuba, Lamk—Jujube tree.

10. Minusops Kauk', Linn.

11. All bamboos.

12. All palms other than cocoanut, especially the palmyra.

II.—*Trees that may be allowed to grow in a Cocoanut Garden.* (1)

1. Ficus Indica, Roxbi—Banyan tree.

(This tree often affords shelter to bats which sometimes assume the form of pest on the cocoanuts.)

2. Erythrina Indica, Lamk—Indian Coral tree.

3. Spondias mangifera, Wild—Hogplum tree.

5. Moringa pterygosperma, Gaertn—Horse radish tree.

6. Averrhoa Bilimbi, Linn—Bilimbi tree (this tree is to be grown only in places where there is ample water in the soil such as found near the wells, etc.)

7. Mangifera Indica, Linn—Mango tree.

8. Artocarpus Intergrifolia, Linn,—Jack tree.

9. *Citrus Decumana,—Pomelo.

10. Psidium Guyava, Linn—Guava tree.

11. Eugenia Mallaccesis, Linn—Malay apple tree.

12. Ficus Glomerata, Box.

(This tree is principally grown along the borders of the drains, tanks etc.)

CONCLUDING REMARKS.

It may be that the conclusions I have arrived at do not agree with those of experts on this matter, yet to be true to myself and to my convictions, I could not do otherwise than state what my observations have led me to believe to be facts. I have exposed my conclusions to the public not with any intention of misleading them, but with an earnest hope of showing the need of making further research in this line and of inviting criticism on this subject from those who, by virtue of their long experience in the cocoanut gardens, have gathered facts on this subject. It must be noted, however, that was not able to grow trees on definite areas or plots and check my conclusions by statistics. I therefore request the readers of this article to note that they are not to place implicit confidence in the conclusions I have drawn from the little experience I have had, but that they should determine for themselves by actual personal experience, their utility or worthless, leaving aside all preconceived theories about the subject. Nor should their observations stop here. Planting of branching trees in a cocoanut estate would sometimes necessitate the reduction in the number of the cocoanut palms per acre. It should, therefore, be the object of workers in this line of research to find out exactly to what extent we ought to tolerate planting of trees in cocoanut gardens.—(*The Poona Agricultural College Magazine*)

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(1) In this group I have included trees which have neutral or beneficial influence on the cocoanut palms, or which more than amply repay by their economic products the harm done to the main crop.

* Other members of the citrus family to which the pomelo belongs are also be grown, with the same result.

INDIAN TEA ASSOCIATION.

A bstract of Proceedings of a Meeting of the General Committee, held at Calcutta, on Tuesday, 1st March, 1921.

CORRESPONDENCE WITH THE INDIAN TEA ASSOCIATION (LONDON).—Letters, dated respectively 3rd and 10th February from the Indian Tea Association (London) were considered, and were to be recorded. The principal subjects dealt with in them were:—

(*a*) *Restriction of crop.*—In the proceedings of last meeting there was quoted a telegram, dated 4th February, received in this connection from the London Association, stating that, in the circumstances as explained, the question of restriction of the 1921 crop must be left to individual action, but that the London Committee were endeavouring to ascertain what reduction was contemplated by members there, with a view to obtaining a modified arrangement. The letter of 3rd February explained in fuller detail the circumstances leading up to this position. The whole question had, it was stated, been the subject of examination by a special Sub-Committee, who had investigated the possibility of framing a revised arrangement in view of the fact that the scheme, as originally contemplated, had fallen through. The Sub-Committee had elicited the fact that a majority of the large agency houses had already adopted the policy of reduction recommended by the Association, and that it would be carried into effect irrespective of what other concerns might do. The remainder, also, had decided on a restriction policy suitable to their circumstances, so that it was quite certain there would be a considerable reduction in crop in 1921, which might even amount to the 20% aimed at under the scheme. It had therefore been decided to ask members to supply figures showing the estimated outturn in 1921 as compared with the average for the five years, 1915 to 1919, inclusive. And, with the letter of 10th February there was forwarded a copy of the circular issued by the London Committee to members, asking for these particulars.

A telegram, dated 25th February had now been received from the London Association giving particulars based on the replies received, up to the date of cabling, to this enquiry. The telegram was in the following terms:—

Restriction crops current season 1921 entirely voluntary. Full details given in my letter of 3rd February. Replies so far received give following particulars: average crops 1915-1919 inclusive 198 million lbs.: estimated crops 1921, 169 million lbs. More replies to come in as estimates are received from India. Committee trust your members will restrict on similar lines.

The Committee decided to issue a circular explaining the position and asking similar information in regard to Indian controlled concerns. Copies of this circular were to be sent to the Branches and local Associations, with a view to the collection of figures, as far as might be possible, from non-members of the Association.

A letter, dated 18th February from Messrs. James Finlay & Co., Ld. was before the Committee. It related to the discussions regarding the restriction of crop in 1920, and suggested that returns should be called for from members with a view to showing to what extent restriction was actually given effect to. With the letter, there was forwarded a return showing the position with respect to companies in their agency, all of which had agreed to adopt the Association's proposal that the outturn for 1920 should be restricted to 90% of the average yield for the years 1915 to 1919, inclusive. The Committee discussed the suggestion that the figures referred to should be collected from members, but they came to the conclusion that these would not now serve a sufficiently useful purpose to justify members being asked to make the returns, having in view that compulsory restriction for 1921 had fallen through.

(b) *Ocean freight agreement*: *Tea rate.*—The proceedings of last meeting referred to the discussion on the tea rate, and to the correspondence passing with the London Association regarding the high level at which the rate remained, irrespective of the fall in the market quotations for rough cargo. The letter of 10th February from London explained that the Chairman and Vice-Chairman of the Association there had had a discussion on the subject with Sir John Ellerman, when it had been arranged that the Association should address the London Conference regarding it. A copy of the letter subsequently sent to the Conference in accordance with this arrangement was forwarded.

The Committee noted the particulars given as to the discussion which took place at the meeting referred to, and the terms of the Association's letter to the Conference. They had of course, since the last meeting, been advised by the Calcutta Liners Conference of the receipt by the latter of a cable from the London Conference, to the effect that the tea rate for February had been reduced to £4-17-6 less 5/- discount, and that for March to £3-15-0 less 5/- discount, the rate as ascertained by the agreement being then reverted to. The receipt of this information was mentioned in an added note in the issued proceedings of last meeting, and the position was now to be recorded.

REGULATION OF SHIPMENTS OF TEA FROM INDIA.—The receipt of the following telegram, dated 14th February, from the Indian Tea Association, London, was to be recorded:—

Restriction shipments. Deliveries all tea during January 33 million lbs. Warehouses cannot receive more than deliveries. In view of this must restrict Calcutta and Chittagong shipments to London to 20 million lbs. in March reducing also if possible February shipments.

Copies of the telegram had been sent to all members of the Association in circular No. 13, in which the General Committee urged members to restrict their shipments as requested by the London Association.

In a letter, dated 22nd February, Messrs. James Finlay & Co., Ld. acknowledged receipt of this circular. They expressed the view that, with the warehouse position at home so serious, restriction should be compulsory, and that it was not sufficient merely to urge restriction. They enquired as to the result of the Committee's reference to members in circular No. 5, dated 15th January, which asked members to furnish figures of total crop in 1920, and of shipments up to the end of 31st December. And they stated that while they would be glad to fall in with a scheme for the restriction of shipments which was supported by, say, 90% of producers shipping tea to London, they did not meantime feel disposed further to restrict their shipments without knowing what support was obtainable. In the event of the requisite support not being forthcoming, they suggested that the Liners Conference should be approached with a view to arranging with the steamer companies to restrict bookings to the requisite extent; for they assumed that owners did not desire to have their steamers laid up awaiting discharge at home owing to lack of accommodation, or to have their vessels diverted to other ports. When the matter had previously been under consideration last year, it was understood that one line was responsible for a similar arrangement falling through, and it was suggested that, if they adopted the same attitude on this occasion, shippers might withdraw their support from it.

With this letter there had been circulated to the Committee statements compiled from the returns furnished by members in reply to circular No. 5, dated 15th January and No. 7, dated 25th January. These, and the position generally, were now discussed at considerable length. It did not seem to the Committee likely that, unless the Liners Conference were prepared to co-operate in the matter, there would be any successful arrangement regarding March. For although, as indicated above, members had been urged to restrict during this month, there were cases of firms who had restricted in the past and had been left with considerably higher percentages of their crop still to ship than in other cases; and the former would not restrict their shipments during March. After discussion it was decided to address the Liners Conference, to point out how serious the position had become in consequence of the congestion of the tea warehouses at home, and to urge that, in the interests both of the steamer lines and of the tea trade, the total quantity of tea from Calcutta and Chittagong combined should not exceed 20 million lbs. in March.

FOOD CONTROLLER'S SCHEME: EXTRA ¼d. PER lb. FOR INCREASED COST OF PRODUCTION IN 1918.—This matter was last mentioned in the proceedings of 7th December, 1920. Negotiations had been proceeding for some considerable time past in connection with payment of the extra ¼d. per lb. for increased cost of production, which the Food Controller agreed to pay in respect of teas shipped home by Indian controlled concerns under the 1918 contract. The Committee had consistently maintained that, under the terms of the contract, locally controlled concerns were entitled to payment of the extra ¼d. in rupees in India, at the rate of exchange of 1/4d. to the rupee. They took strong exception to the proposal of the Food Controller that all payments on this account should be made in London; for at the time when the Food Controller's consent to pay the extra ¼d. was received, the rate of exchange was such that concerns would have been involved in heavy loss in bringing out to India the sterling amounts paid to them in London. Eventually the London Association, who discussed the matter at length with the Food Controller, demanded arbitration on the point, but on the suggestion of the Controller discussions were continued. In the meantime, however, the position of exchange entirely altered, and in the changed circumstances the Committee issued a circular to members recently recommending that payments should now be accepted on the basis proposed by the Food Controller. The circular was now to be recorded.

A letter, dated 21st February, was before the Committee from a member who enquired, with reference to this recommendation, whether the question of interest from date of shipment had been considered by the Committee, and whether anything definite had been settled in this matter. The Committee decided to reply that, in their opinion, it would scarcely appear to be good policy, having regard to the now prevalent rate of exchange, to raise this question with the Food Controller.

THE AUSTRALIAN TEA TRADE.—As arranged at last meeting, the Committee addressed the Government of India, Commerce Department, asking that representations should be made to the Government of Australia on the subject of a preferential duty on British grown teas entering the Commonwealth. It was stated, in the proceedings, that it was understood the Ceylon Chamber of Commerce had asked the Government of Ceylon to make similar representations.

The Committee had now received a letter, dated 22nd February, from the Bengal Chamber of Commerce, inviting an expression of views on a letter received by them from the Ceylon Chamber which stated that, at their request, the Ceylon Government had made representations to the Government of Australia on the subject. The suggestion was made that the Bengal Chamber should address the Government of India urging them to take action on the same lines. The Committee now directed that the Bengal Chamber should be informed that they supported the proposal, and a copy of their letter to the Government of India was to be forwarded to the Chamber for information.

THE FINANCIAL POSITION OF THE ASSOCIATION.—The Committee considered a note, dated 28th February, by the Secretary regarding the financial position of the Association as explained by the accounts of the Association, and of the Scientific Department for the year ended 31st December, 1920: copies of the note had been sent to the Committee prior to the meeting. It dealt with the balances at the credit of both accounts at the close of the year referred to, and with the estimated requirements for the current year; and, on the basis of these figures, the note explained that the current rate of subscription—6 annas per acre—would suffice for the present year, but that it would probably be necessary to increase the subscription in 1922. The Committee agreed, and directed that the note should be recorded.

In connection with the Scientific Department, the Chairman explained that, as the Committee were aware, the question of engaging a bacteriologist for the staff had been under consideration. The matter had been referred to at the last meeting of the Committee, and the position was, as stated in the proceedings, that the only difficulty related to bungalow and laboratory accommodation for this additional officer. In the correspondence with the London Association which was quoted in the proceedings of the last meeting, reference was made to an offer of a bungalow in close proximity to the Tocklai Experimental Station, this bungalow belonging to an engineer at Jorhat. At first it did not seem expedient to take advantage of this offer, because it was desired that the next bungalow to be built should be on the Borbhetta Grant, but, after consideration, the Chairman expressed the view that it might be to the interest of the Association to acquire the bungalow referred to, as it would be considerably cheaper to do so than to build a new bungalow. After discussion the Committee agreed with this view, and the Chairman stated that the Scientific Department Sub-Committee would therefore instruct the Deputy Chief Scientific Officer to accept the offer of the bungalow, on condition that a satisfactory report regarding it were obtained from a member of the Tocklai Advisory Committee.

It was also decided that, subject to a satisfactory report being obtained, and to the transaction going through, a cable should be despatched to the London Association asking them to proceed with the engagement of a bacteriologist; for the Committee considered that the question of laboratory accommodation could be arranged satisfactorily.

TEMPORARILY ABANDONED TEA.

The simplest method of reducing crop is to stop plucking certain areas. If such areas are kept in cultivation the gain in the vigour of the bushes will be very great, and this method of improving the weakest sections is recommended to those gardens which can afford it, In many cases, however, expenditure on areas yielding no immediate return will be financially impossible, and such expenditure is in any case a consideration.

It is well to consider, therefore, what will be the effect of temporarily abandoning tea altogether.

In the first place the effect on *the soil* of leaving it uncultivated, will do nothing but good. The root action of the resulting jungle, the addition of humus due to such vegetation as dies and decays, and the entire absence of the puddling effect of heavy rain and of cultivation when wet, will result in a great improvement in the "richness" and the tilth of the soil.

But the effect of the competition of the jungle for water and food, and the poisonous effect of so many plants crowded into its neighbourhood, will do so much damage to *the bush* that, if such conditions persist for long, recovery when the jungle is removed may be very slow.

Of even more importance is the probability of the establishment of undesirable weeds in the area. Among the weeds which will certainly establish themselves are various grasses with deep long underground stems, such as thatch (*Imperata arundinaccan*), and Kohuan grass (*Saccharum spontaneum*). Quick growing trees, and shrubs such as "Futuka" or *wild rhododendron* (*Melastoma*) will also establish themselves in a single season.

Apart from the labour involved in digging out shrubs and small trees, it would in many cases require years of cultivation and green cropping to free, from undesirable weeds, land which had been allowed to relapse into jungle. To prevent this state of affairs it will be desirable to establish, among the tea, plants which possess if possible all the following properties :

(1) Easy removal when required.

(2) Rapid and vigorous habit of growth which will enable the plant to complete with and suppress jungle.

(3) It should be a tall plant, because tea does not suffer from shade unless it be very dense, and actually benefits from light shade, while shade will keep down the worse types of jungle. Low-growing plants, such as cowpeas, etc., will not keep down the growth of tall grasses, which would grow through and above the low plant, and a low plant growing into the tea bush will do it more damage than a tall plant branching above it.

(4) It should be a leguminous plant which will not only be largely self-supporting in respect of nitrogen, but will also actually enrich the soil in this respect.

(5) It should, if possible, provide a crop of some monetary value, but in the case under consideration this is of minor importance, since if the crop produced is of considerable value, inter-cultivation and other attention can be afforded for the area.

The plant which most nearly fulfils all these conditions is Arhar ("Cajanus indicus".)Boga medeloa ("Tephrosia candida") is generally not so rapid in growth, but might be substituted on poorer soils where Arhar does not grow vigorously.

Dhaincha (Sesbania aculeata) would do quite well for one year, but would not often be very satisfactory if it had to be left for a second season.

Neither of the latter provide a seed crop of any value, while a crop of value as food would always be obtained from Arhar, although in many districts insect attack may render the crop a small one.

Indigo, although not so quick growing or hardy, also fulfils the necessary conditions very fairly ; but the crop whether of leaf, manufacture of dye, or of seed for sale, or for future use, is of sufficiently high value to warrant more expense and attention than is contemplated in the case of the other plants.

Sowing should be in every line, at the rate of about 4 seers per acre. Land should be clean at time of sowing ; and sowing should anticipate the early rain, probably March would generally prove best.

At this seed rate the plants would be closer than necessary, and it would he advantageous to thin out to about 6" apart when the plants reach the height of the bushes. The plants pulled out should be left on the surface of the soil, and this mulch will be of considerable assistance in keeping down weeds.

If it is decided that the planting of green crop among the tea is too expensive, some effort to keep down the jungle should still be made.

Probably it would prove cheapest, and at the same time fairly efficacious, if the jungle were sckled whenever it reaches the height of the tea. The cut jungle should be left lying on the ground between the bushes.

In bushes so left unpacked, particularly if heavily shaded, it is to be expected that "sides" will be altogether lost. When the area is again taken into cultivation, it is probable that the branches approaching the horizontal will have either died or become so weak that they are better cut away. Since sections showing healthy, flushing sides will probably not be chosen for abandonment, it is probable that this loss of side will prove of little practical importance; and the small number of nearly perpendicular, straight, healthy branches will provide a fine framework on which to build up a healthy wide bush.

H. R. C. in

the "Indian Tea Association Scientific Department Quarterly Journal."

NOTES AND NEWS.

Ceylon Tea.

The following figures showing exports of Ceylon Tea by rail to stations in Southern India *via* Talaimannar, are taken from the "Ceylon Chamber of Commerce" weekly price current, dated 7th and 14th March, 1921 :—

	lbs.
Ramaad ...	298
Karaikkal ...	92
Dhanushkodi ...	50
Cannanore ...	5,600
Tirur ...	160
Palghat ...	550
Tinnevelly ...	140
Total...	6,890

Coffee Prices.

The tendency at home is undoubtedly downwards, but there has been a firm market locally, and good coloured coffee has been sold at Rs. 51. There are few sellers owing to the temptation of cheap freights and low exchange to send Coffee to London. Messrs. Leslie and Anderson, however, point out that the first arrivals of New Crop East India Coffee did not attract much competition, and they do not therefore expect that values will be maintained, A small lot of Faith Coffee fetched high prices 118s for "A"s, 109s for "B"s and 121s for P. B., but other marks averaged only 95s to 113s for "A"s, 90s to 100s for "B"s, and 95s to 110s for "P.B."s. Although fine Coffees attracting the home trade may be likely to sell well, it looks as if Rs. 51 out here has quite equal attraction if it can be maintained which, however, is doubtful.

The U. P. A. S. I. Gazette.

Will subscribers please note that the Chingleput Division of the Labour Department will be closed entirely from 31st March, 1921.

Mr. B. P. Tailyour having left the service, he will be succeeded by Mr. A. H. Mackie, and the Head Quarters of the Madura Division will be transferred to Srivilliputtur from 1st April, 1921.

Mr. W. J. A. Lechler has been elected Honorary Secretary (*pro tem* of the Shevaroy Planters' Association, *vice* Mr. H. S. Dickins resigned.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

VOL. XVI. NO. 14.] APRIL 2, 1921. [PRICE AS. 8.

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PRICE OF "A" Coffee.

(BY CABLE.)

LONDON, DATED 24TH MARCH, 1921.

105s. per cwt. Market Better.

EDITORIAL NOTES.

Ceylon Labour.

In view of the rumours prevalent regarding the return of coolies from Ceylon, it is interesting to note that Mr. Scoble Nicholson, Ceylon Labour Commissioner, in the "Planting Gazette" for March, puts the number repatriated from 30th November to 22nd January at 4,940. How many of these have come over in the ordinary course to visit India, or to recruit, or how many have been discharged from their estates with instructions to return to India it is difficult, he says, to ascertain.

Emigration.

For the same period the Ceylon Labour Commissioner states the number of coolies actually despatched to Ceylon through the Commission was 3,272. Up to 15th February he had received orders to stop recruiting new coolies from estates comprising no less than 1,29,796 acres.

Loss on Rice.

According to the "Planting Gazette," statistics relating to loss on rice show that in 26 Districts, on an acreage of 552, 281 acres, the loss by issuing rice at a price below cost was Rs. 10.497.294, or Rs. 19 00 per acre. The highest loss was Rs 29½ per acre in Upper Hewaheta, where 4,201 acres lost Rs. 123,922, and the lowest in Galle, where 24,626 acres lost Rs. 222,146, an average of Rs. 9·02 per acre. The period to which these figures relate is not stated.

Coffee Prices.

Our Coffee cable foretells a better market at home. Locally prices continue firm, with very little good coffee available. Messrs. Peirce Leslie and Coy., write that there are buyers of good Nilgiri, or Shevaroy, or Mysore at Rs. 50/51 ex bags ex works, but there are no sellers. Annamalai is not much enquired for at present.

Messrs. R. J. Rouse and Coy., in their London report, dated 3rd March say the market has given way under the increased weight of coffee. We take the following from the sales :—

MARK	O.	A.		B.		C.		P.		T.	
Corringabetta	...	59	100	28	93	2	60	16	105	6	57
Muskell Borah	...	32	113/6	23	100	1	57	6	110	6	57
Sud Beechlands	...	26	99	17	92	1	56	4	98	4	56
Craig's Eliza	...	53	100	27	90	2	ns	8	ns	3	ns
Hope Bamboo	...	25	99	16	95	1	56	4	98	3	56
Wata Kadu	...	6	ns	9	88	1	ns	2	ns	1	ns
Jumboor VB	...	30	109	36	97	4	75	10	118	4	57
Faith	...	12	118	21	109	2	ns	3	121	2	ns
Eldorado	...	31	110	18	ns	2	ns	7	113	2	ns
Dubarry Bamboo	...	34	100	26	ns	3	ns	7	101	4	ns
Cannon Kadu	...	22	103	16	93/6	2	62	5	107	3	58/6
Yemmagoondi	...	58	99	38	90	3	57	10	101	6	61

The S. I. P. B. Fund.

The financial year of the U. P. A. S. I. having just closed, the Secretary issues a *resume* of the results of the appeals issued, the new rules framed, and in short the general reorganisation of the Benevolent Fund. One Association boasts that every European resident of the district is a member, of which four are life members, and several are giving donations in addition to their subscriptions. This is probably a record for any one district—100% efficient.

Inter-District Sports.

We understand the match High Range *versus* Anamalais will be played at Munnar on Sunday, April 10th. The day previously there is to a cricket match between the two teams. An endeavour is being made to play off the Group "C" matches either at Coimbatore or in the Nilgiris, at the same time, also about 9th April. We have yet to hear if Group "A" have fixed a date.

The late Mr. W. A. Asher.

We had no idea that this well known Peermade Planter's illness was so serious, and were very shocked to hear of his death at Kotagiri on Monday last. We extend our deepest sympathy to his widow and daughter, who, we believe, are at home, and to his sister who nursed him in his last illness. Mr. Asher came to Travancore from Ceylon some 12/15 years ago, and was for some time Manager of Teekoy Estate, near Mundakayam. He took over the Peermade Tea Company's place, Cheenthalar, about 1917 and this very fine property owes much to his capable management. He married a sister of Mr. R. Harley, the Mundakayam planter, and was till recently visiting Agent of Kutikal. He will be sadly missed in the two districts, as well as by a very large circle of planting friends all over South India.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore,
31st March, 1921.

SECRETARY'S REPORT NO. 13.

1. INDIAN TEA CESS.—Under the Indian Tea Cess Amendment Act I of 1921, the Indian Tea Cess Committee have asked the Government of India to raise the cess to four annas per 100 lbs. on all tea exported from India as from the 1st April, 1921. The Department of Industries, Government of India, have asked this Association if it agrees to the proposed increase. The Executive Committee have decided that, as we asked for the Act to be amended, the Association must agree to the proposal, and the Government of India have been notified accordingly.

2. SOUTH INDIAN PLANTERS' BENEVOLENT FUND.—The following is an analysis of the support given this Fund during the year closing to-day, and compares with 153 subscriptions amounting to Rs. 5,440 received in 1919-1920:—

Name of Association.	Number who Subscribed.	Amount. Rs.	A.	P.
Anamalais ...	50	620	0	0
Bababudans ...	6	60	0	0
Central Travancore ...	20	245	0	0
Coorg ...	6	175	0	0
Kanen Devans ...	19	235	0	0
Mundakayam ...	17	545	8	0
Nilgiris ...	4	230	0	0
Nilgiri-Wynaad ...	9	90	0	0
North Mysore ...	1	20	0	0
Shevaroys ...				
South Travancore ...	...	250	0	0
Do. ...	9	165	6	0
South Mysore ...	21	420	0	0
West Coast ...	2	25	0	0
Wynaad ...	10	125	0	0
Combined Travancore ...	...	1,000	0	0
U. P. A. S. I. Staff ...	9	100	0	0
Harrisons and Crosfield ...	2	240	0	0
	185	4.545	14	0

The Anamalais has the distinction of being the only District in which every planter and man connected with planting supported the Fund. The total benevelences granted during the same period was Rs. 6,300, so that, although it is satisfactory to note the increased interest taken in the Fund, the amount received is considerably less than the amount paid out.

(Signed) C. H. BROCK,
Asst. Secretary.

SOIL DRAINAGE.

This article is not written as a complete dissertation on the difficult and complicated problem of soil drainage, but rather as a short note in which are mentioned some of the more important points, in order to stimulate a greater interest in this, one of the most important of agricultural operations. Too little attention is often given to this problem, doubtless because it means a very large expenditure of money. On the other hand it must be realised that, until a soil is properly and efficiently drained, it is impossible for it to be in the best condition for yielding maximum crop returns, and in fact it is often the controlling factor that retains the crop at its present low level. Before, however, it is possible to arrange a drainage scheme for a garden, it is necessary to fully appreciate exactly what is required and expected. What is meant by drainage? Certainly not the mere cutting of drains at certain intervals in an area. The drainage of an area of soil implies the removal from the soil of excess water that is not required. and the means employed to bring this about is the drainage system. Some few soils, owing to climatic conditions, their geographical situation and their physical conditions, etc., eliminate excess water naturally and without any artificial aid, but this is not so in the vast majority of cases. Natural drainage as a general rule is insufficient to meet the requirements in this direction of the tea plant, which is, or should be, deep rooting if it is to resist the varying extremes of climatic conditions that pertain to North East India.

Since drainage, then, is the removal of excess water from the soil, it is necessary to enquire what is excess water. Any naturally situated piece of soil particles made up of small pieces of rock and mineral matter and organic matter, etc , patched together in a more or less loose manner, leaving in between the particles interstices which can be filled with fluid substances such as air or water. If such interstices are completely filled with water the soil is water-saturated. For agricultural purposes it is necessary that these interstices be filled partly with air and partly with water, the water being in the form of a film spread over the solid particles. Such water is held together as a film by capillary force, and cannot be removed by drainage. The amount of water so held in a soil varies with the type and class of the soil. As the amount of water increases, so the force retaining it entirely as a film becomes less, until a point is reached where what may be termed free water is present, that is to say water that can be removed by drainage, and the object of drainage is to remove such water, for its presence in the soil means that it is occupying space between the soil particles that should be filled with air, and aeration of the soil is in consequence deficient. It will be noted that film water cannot be removed by drains, and film water is able to supply the full need of a growing plant, provided the root formation of the plant has suitably developed, which can only be when the soil is sufficiently aerated. A soil that at one time is unduly filled with water and at another time has no excess water will not permit of proper root growth, and plants in such soils often suffer severely from drought. There is with all soils a certain definite water content that renders the soil in its best physical condition. This point is readily recognised by expert gardeners from the feel and appearance of the soil, and it is then in the best condition possible for producing maximum plant growth. The water content of the soil at this point is known as the optimum water content, and it is as close to this point as possible that it is desirable to keep the water content of a soil. A soil in which the water content is below this point is unduly dry, and above this point the soil contains too much water. The optimum water content of soils varies considerably according to their nature, but is lower with sandy soils than with clay. In the case of a peat bheel it is very much higher than with clays. As instances, the following may be cited of tea soils :—

A sandy soil has an optimum water content of about 15%.

A clay soil has an optimum water content of about 20%

It has already been explained that excess of water in a soil means a deficiency of aeration in the soil, but this is not the only ill effect arising from insufficient drainage. Excess water aids in the formation of pans in a soil, formed largely of iron and aluminium silicates, and this is easily noticed on many insufficiently drained tea soils. Excessive quantity of water in a soil increases soil acidity, partly in a direct manner, but also indirectly by bringing about lack of aeration and the prevention of oxidation, and by modifying the development of the various forms of micro-organisms in the soil. It also causes certain plant food substances which, in a well aerated soil, would be in the soil solution to be removed from solution either by precipitation or absorption. Nitrogen, potassium and phosphorus can all thus be rendered non-available for the use of the plant. The non-availability of the plant food in a soil is a very general feature of many of the badly drained areas of tea. It may be noted that manures, added to such soils usually exert, but little influence on the tea. They are rendered non-available. The general effect, then, of non-drainage of a soil is to render the plants growing there unhealthy, and much more liable to disease attack. To mention but one or two of the pests and blights that are more commonly in evidence on such plants ;

Red spider, Red rust, Root diseases, Mosquito blight, and, on Sau trees, canker.

It is of course obvious to everyone that a low lying piece of land, surrounded by higher land, where water stands after rain, is in need of drainage, but it is not always so obvious to casual observation that level land or land gently sloping is in need of drainage, and still less obvious if the land is at a steep slope, and the remark is often heard "such and such a piece of land can't want drainage, it is naturally drained." This is, in the majority of cases, not correct and a further study at all times of the year of the water conditions in the soil will soon reveal the fact. Another class of soil that is often supposed by reason of its situation to be drained is a high plateau. In some cases the top soil on the plateau is of a good open texture, but underneath, at no great depth, is a subsoil of a clayey nature, and this may be saucer-shaped, deeper towards the centre of the plateau, and nearer the surface at the edges. The water is then held in, and the whole drainage is towards the centre where the water accumulates. On plateau land the permanent water level is often very far below the surface even in the rains, but, on account of the close texture of the subsoil, the water that accumulates in the top soil cannot percolate sufficiently rapidly through the subsoil and in districts where rainfall is very heavy in a few months of the year, as in the Duars, where 200 inches may be precipitated in about 3 months, the water accumulates in the surface soil to such an extent that the soil becomes almost saturated. Such soils can only deal successfully with a very evenly distributed rainfall without any heavy precipitation. Badly drained soils owing to the bushes being shallow rooted suffer more from drought than well drained soils, and this is particularly noticeable in the case of heavy clay soils. Another feature of badly drained soils is that the early flushes of the tea bushes are good, but that later on, commencing for example with the third flush and continuing until September, the flushes are not as good and as heavy as they should be. This is due to the advent of the monsoon and the heavy rainfall leading to waterlogged soil, drainage being insufficient to remove it rapidly enough.

Many times emphasis has been laid upon a form of cultivation that n clay soil districts having a heavy rainfall is often practised, and that is light hoeing when the soil is thoroughly wet. It has been the writer's misfortune to see hoeing being done on a clay soil whilst heavy rain was actually falling and had been doing so for some hours during the monsoon period and when the soil would certainly be nearly saturated. It has been repeatedly pointed out that this puddles the soil and effectually prevents proper drainage and aeration. The reason for doing this that is often given is to find employment for the coolies, but it is surely possible to find a form of cultivation, *i. e.*, forking or hand weeding that shall not be doing damage to the soil; drainage also can generally be improved, and this work is easy during the rains.

A form of cultivation that is with great advantage employed on tea gardens is trenching, and this does a very great amount of good in ameliorating soil conditions, but there are certain points to be noted in this connection. On sloping land, if trenches are made on the contour, they act as catch water drains, and on heavy soils, or soils not sufficiently well drained, may and do cause the retention of water in the soil during the wet weather. On the other hand trenches cut at right angles to the drains and to within 6 inches of the drain sides greatly assist the removal of water. An effective and satisfactory manner of improving drainage on soils where the permanent water level is well below the surface is by growing deep rooting trees. What particular kind of tree should be planted needs the careful attention of garden managers. For instance, on some gardens Sau trees do well and the root system develops deeply, but in other cases it develops almost entirely on the surface, and the tea in consequence usually suffers, or gains but very little benefit. In another instance that came before the writer rain trees (*Pithecolobium saman*) were exerting a very beneficial influence on the tea by breaking up the subsoil and causing the tea to take deeper root, and by improving the soil drainage, yet this tree, as a rule, does not have any good effect upon tea. In areas in which drains are about to be made it is of essential importance, in most places, that correct levels be first obtained by means of surveying instruments. It is impossible, on gently sloping or undulating land, to determine by the eye the most suitable direction for the drains. It is also of importance that, when drains are made, they should be at a proper distance apart. Drains cut too far apart are often seen, with the result that the area is not efficiently drained. On heavy soil drains need to be cut at 20 feet distance, beyond this distance they are too far apart. On lighter soils the distance can be increased, but drains cut further than 40 feet apart cannot usually do the work required of them. The depth of drains is also another matter of great importance, and 3 feet appears to be the minimum depth of practical advantage. When first draining a water-logged section in which the roots are shallow, it is not always desirable to cut the drains to the full depth at once. They should be made in the first year to a depth six inches below the root depth, and each succeeding year deepened until a minimum of three feet is obtained. If made to the full depth at once, the *bushes* are liable to suffer until the roots have grown downwards. Another point that needs to be remembered is that drains, once made, do not efficiently perform their duties for ever. The movement of the soil water towards the drains carries with it the finer clay particles of the soils, and these gradually accumulate at the drain sides until the interstices of the soil become largely filled in by such small particles, and the rate of movement of water through the soil close to the drain side becomes very much restricted. This happens more rapidly in soils containing large quantities of clay, and is not so noticeable in soils where the finer particles of soil are absent. In such cases it is necessary to cut new drains in the adjacent line of tea, and when the sides of the new drains in their turn become clogged another drain can again be cut in the original line.

In the tea districts the form of drains used has been almost entirely confined to open drains, but another form of drainage which has met with marked success in many countries is that known as tile drainage. It has not found use in tea, largely *because of* the initial expense, but it has certain definite advantages. One of great importance is the elimination of wash on slopes. The tiles, being buried beneath the surface of the soil, do not interfere with cultivation. This form of drainage, if tiles can be locally obtained, is worthy of careful consideration.

A little book that has recently been published entitled "Drainage for Plantations," by Claud Bald, will be of interest to planters in this connection.

[P. H. C. in the "Quarterly Journal," Indian Tea Association Scientific Department.]

BAMBOO FOR PAPER-MAKING

The current number of the Bulletin of the Imperial Institute contains a comprehensive and valuable article on the utilisation of bamboo for paper-making. Bamboo has come much to the front in this connection during the last year or two, and it seems likely that in the near future the manufacture of paper from this material will be undertaken on a large scale in several countries. A British firm have been granted a concession for cutting bamboo in the Government forests in Trinidad, and have also established a bamboo plantation there of 1,000 acres. Leases have been granted or applied for, for working bamboo forests in Burma, Madras, and other parts of India. In Indo-China, two factories, equipped on up-to-date lines, are actually manufacturing paper chiefly from bamboo. Paper made entirely from bamboo pulp is of high-class quality. On the whole it is too good for the manufacture of ordinary news-print, and is more suitable for the better grades of printing paper.

The article gives an account of the general characters and distribution of bamboos, and a detailed statement as to their occurrence and utilisation in various countries. The technical side of the subject is fully dealt with, particulars being given of the various methods which have been employed for the conversion of bamboo into paper-pulp.

WOOD FOR RUBBER SMOKING.

By Dr. H. P. Stevens.

We understand that the Conservator of Forests for the F. M. S has issued a pamphlet entitled "Wood in the F. M. S.; its Use, Misuse. and Future Provision." A copy of this pamphlet has not reached us, but the November issue of *The Planter* deals with the matter at some length in its relationship to Rubber Planting.

The Conservator is evidently "out" to restrict the consumption of wood by every possible means at his disposal, and its utilisation, even for rubber smoking, is criticised. Shortly, his argument appears to be that smoking is unnecessary for the preparation of rubber, the quality is not improved, and consequently wood for such purposes is misused and wasted. In support of this view we are referred to the method of preparation adopted by the U. S. Rubber Company of Sumatra, who do not smoke their rubber, and. as they use it themselves they are evidently of opinion that rubber is better if not smoked. The fact, however, that they consume their own product enables them to adopt an independent attitude, which is not possible in the case of a Company which has to dispose of its product in the open market. I drew attention to this most important consideration in the last "BULLETIN," when discussing the merits of "slab" rubber (Bull Vol. No. 1). This point is also emphasised in the article in *The Planter*. The Conservator of Forests remarks that :—" It appears to me that unless it can be proved that the smoking of rubber renders it more valuable, some steps should be taken to prevent smoking." Now smoking rubber does make it more valuable, for it prevents mould, and mouldy sheets fetch an appreciably lower price than clean ones. The trouble with sheet rubber has always been the prevention of mould, coloured spots (which are also due to a fungus) and other surface defects. In the early days all sorts of methods were tried to keep the rubber clean, including immersion in boiling water, which caused appreciable damage. It was not till smoking was introduced that clean sheet rubber could be produced regularly. As it is, any carelessness or want of skill may result in a mould having developed on sheets when they arrive in this country. The chemists of the R. G. A. have for some time been experimenting with antiseptics to prevent mould, but so far with no success. Although smoked sheets may show mould, they never show the coloured spots or patches sometimes met with in crepe rubber. In this respect smoking is a very efficient disinfectant. The question of mouldy sheet and its effect on quality is discussed in an article in this *Bulletin*, from which it will be seen that the chemist of a rubber manufacturing Company in the U. S. A. attaches great importance to freedom from mould. The general effect of mould growths and coloured spots in rubber is to reduce the rate of cure. It does not follow from this that the actual quality of the rubber is impaired. The effect of smoking is similar in its effect to mould, that is to say, the smoking tends to reduce the rate of cure. The reduction, however, is not great in the case of properly cured sheet; I have usually found smoked sheet to cure appreciably faster than ordinary crepe rubber. Generally speaking, I think better results are obtainable from smoked sheets than crepe, but this remark applies only to laboratory vulcanising tests. In a rubber factory, so many other factors enter into consideration. As an instance of this I may refer to the article in the January "BULLETIN" dealing with the dryness of plantation rubber. Smoked sheet, too, is never quite so clean as crepe rubber. In a factory using smoked sheet regularly, small pieces of bark are met with every now and again, for, however carefully the latex is strained, freedom from particles of bark cannot be so certainly effected as by washing the rubber crepe. As a result, sheet rubber has to be washed by the manufacturers when used for certain purposes, whereas it is not necessary to rewash crepe rubber. At the last Rubber Exhibition there was a considerable diversion of opinion among manufacturers as to whether crepe or sheet was the better rubber for general purposes. There were, however, exhibited motor tyres made from both sheet and crepe rubber. It is probably impossible to give a categorical answer to the question as to which is the better rubber because one is more suitable for one purpose, and the other for another purpose. Consequently manufacturers would feel the loss of a supply of sheet rubber if an enactment was carried through to prevent the use of wood for smoking. It has been suggested that slab or purified coagulum is a better rubber than either sheet or crepe. The quality of this rubber is discussed in an article in this issue of the "BULLETIN." It is shown that, although curing rapidly, it varies very considerably in rate of cure, and the question arises whether the advantage of a rapid curing would not be more than counterbalanced by increased variability. It is understood that the method of preparation adopted by the U. S. Rubber Company is on these lines. As, however, they are preparing the rubber for their own purpose, they can standardise the preparation in a way which would be practically impossible in the case of rubber estates scattered all over the East, in different situations, with different facilities for rubber preparation. Variation in sheet and crepe rubber as hitherto prepared would be almost negligible compared with the variation introduced with slab rubber. I have not come across a statement as to the saving the Conservator would expect to realise if smoking were abolished, but, as much of the wood used consists of thinned out rubber trees and other waste timber on the estate, we would hardly expect that the saving would be very great. (*The Bulletin*, Feb. 1921.)

Treatment of seeds with chemical Disinfectants.

An article by Harry Braun, which appeared in the *Journal of Agricultural Research*, July 15, 1920, gives an interesting account of results obtained by him in experiments on a method of seed treatment whereby injury to seeds, due to chemical disinfectants may be prevented, and the germicidal efficiency of these disinfectants may be increased. This method the author designates as the 'pre-soak' method.

It is pointed out that the wide-spread use of formalin, copper sulphate, and other germicides in the treatment of seeds for the control of seed-transmitted diseases, is generally followed by decreased and retarded seed germination. Pathogenic organisms on the seed-coats, such as bacteria, fungus spores, or mycelia, are usually in a resting or dormant stage, and require the use of disinfectants in a fairly strong concentration—1 to 80 for copper sulphate, and 1 to 200 or to 320 for formalin; these strong solutions often act detrimentally on the germinating seed. Even much weaker solutions exhibit retarding and killing effects on some seeds.

In the course of investigations on a bacterial disease of wheat, a new treatment of seed-wheat with formalin or with copper sulphate has been discovered, whereby seed injury due to these disinfectants is either eliminated or reduced to a negligible minimum, while at the same time the bacteria are rendered more susceptible to the action of the disinfectant. The result has been accomplished by the application of a fundamental principle of bacteriology, and of an established law of physico-chemistry. The first is that micro-organisms in an active vegetative condition, or just resuming activity, are more susceptible to destructive agents than when in a dry or dormant state; the second is the law governing the diffusion of dissolved substances, whereby a solvent has a diluting effect on any stronger solution diffusing into it.

In accordance with those principles, wheat seeds were first soaked in tap water for ten minutes, drained, and kept moist for some hours, then soaked thoroughly in formalin solution (1 to 400) for ten minutes, drained, and kept moist for some hours more. The first soaking was done in order that the water absorbed might weaken the solution diffused into the cells, and so result in less injury being done to their germinating power. After this, numerous experiments were made varying the length of time during which the seeds were kept moist, but always starting with a preliminary short plunge into water.

As a result of these experiments, several facts seem to be established. First, in all cases, with each variety of wheat, barley, oats, and maize tested, the pre-soak method minimized or eliminated the injury to seed germination due to the use of formalin or copper sulphate. Second, a marked stimulation of growth was usually produced. Third, the method proved fully efficient as a means of destroying or preventing the growth of the bacteria of the disease borne on the seeds, and can doubtless be applied for the prevention of other diseases. Fourth, the method is simple and adaptable to field conditions.

The method of treatment which seemed to give the best results was as follows: oats, wheat and barley were soaked in water for ten minutes, drained and kept moist for six hours, then soaked in formalin solution (1 to 320) for ten minutes, and covered for six hours more. Maize which absorbs water much more slowly than the other cereals, and which is also less susceptible to formalin injury, was given a ten-hour pre-soak—that is ten minutes in water, draining and covering for ten hours, followed by four hours formalin (1 to 200) treatment.

The saturation of the seed cell and walls with water during the pre-soak period appears to be the factor counteracting the injurious effect on seed germination, by diluting the disinfectant beyond the point of injury, as it diffuses into the tissues.

It may be noted that the actual stimulation of germination, which has been observed repeatedly in these trials, minimises, by shortening the time of germination, the danger of exposure to the attack of injurious organisms which may be present in the soil during this susceptible period.

The use of the pre-soak method tends to increase the efficiency of the disinfectant, in that the pre-soaking stimulates dormant bacteria, and possibly fungi, into vegetative activity, thereby rendering them extremely susceptible to the subsequent action of the disinfectant,

Of West Indian crops, cotton, corn, and beans are, of course, sown by seed. The treatment of cotton seed with sulphate of copper solution before planting has been sometimes, and perhaps still is, practised for disinfecting purposes. The process noted above may perhaps be employed usefully wherever the presence of seed-borne pathogenic organisms may be suspected on cotton or other seed.—"Agricultural News."

Modern Methods for Experiments with Fertilizers and Manures.

Under this heading Prof. John Sebellin, of the Agricultural University of Aas in Norway, discusses in the October number of the "Journal of Agricultural Science" (Vol. X., p. 415) the important question of the planning of field experiments for comparing the effect of different manures and fertilizers on crop yield.

Experiments for the study of a fertilizer problem must be comparative. In setting out a series of plots which are to receive different manurial treatment in order to compare certain manures, it is an indispensible condition that a complete homogeneity of the whole field exists before the manures are applied. In practice this can never be the case. The differences which normally exist in the fertility of an untreated field in its various regions may be enormous; they may even rise to more than 100 per cent.

The manurial experiments which have been for many years carefully conducted at Rothamsted in England, and which have formed the classic model for similar experiments in all parts of the world, owe their reliability to the remarkable uniformity which fortunately exists in the soil of the trial fields. Such uniformity is, however, very rare, and experience has proved that a great number of agricultural experiments which have been and are still being carried on in various agricultural countries, are almost if not quite, valueless because of the fact.

The recognition of the almost insurmountable difficulties which beset agricultural experiments caused Paul Wagner, of Darmstadt, more than forty years ago, to pronounce field trials valueless as a scientific method of research. Wagner developed the pot culture method as a substitute for the field plot method. With certain crops, such as the smaller cereals, the pot culture method led to high degrees of exactness, and was regarded by many investigators as the best way of ascertaining the value of any fertilizer. In pot experiments it is possible to obtain approximate homogeneity of soil conditions, by filling the pots with soil of uniform composition, or by using sand which receives the fertilizers by being watered with solutions of them.

There are, however, certain problems connected with the fertilizers which cannot be solved by pot experiments at all events, the results of pot experiments have to be confirmed and controlled by field trials. To improve method of field experiment so as partly to correct the error due to unavoidable lack of soil homogeneity, it has been proposed to make the plots so small that they can be repeated several times over the field. By a proper application of this principle errors due to soil heterogeneity may be considerably eliminated, but even then it will not make field experiments satisfactory for very exact scientific researches.

It is worthy of note, especially in connexion with the carrying out of agricultural experiments in the West Indies, that there is an important factor which obviously affects the reliability of plot experiments for testing the effect of various manurial treatment, or of comparing botanical varieties of plants; and that is the size of the plant which is to be used in the experiment. With a small plant, such as wheat, many hundreds of individuals may be grown on a few square yards of soil, and for this reason errors due to soil heterogeneity,and. to variation in the individuals themselves become greatly reduced. In arboricultural experiments, on the other hand, it is almost impossible to eliminate errors due to the individual characteristics of the trees themselves, such as healthiness, degree of productivity, and hardiness; for such plots would have to be so large in order to include a sufficiently great number of individuals to reduce the error, that the acreage of a large experiment station might be used up in a single experiment. Large plots also mean large errors, due to soil heterogeneity. Thus, arboricultural experiments become very much more difficult to carry out successfully than agricultural experiments.

Statistical methods of examination of results obtained in field experiments go a long way to make the interpretation of results obtained from them trustworthy and informative, but the results must be handled by experts, since they frequently offer many difficulties demanding special mathematical treatment for their interpretation.

Recently, Professor Ehrinburg, of Gottingen, has proposed that every manurial field experiment is to be prepared with a control experiment, in which all the plots should be treated for a whole year exactly uniformly, without any sort of manure. Only if the crop from all the plots agree can the field be accepted as suitable for a further comparative experiment. It would be difficult, however, to find many fields which will stand this test, especially in hilly countries.

It is to be realised, therefore, that soil heterogeneity is a thing to be recognised, and not evaded. With a suitable plant of not too great a size, the variations of the soil may be estimated by the use of a great number of control plots adjacent to each of the trial plots. With wheat, this method, which is frequently known as the ' chess board' method, has given very reliable information, when the results obtained from it have been interpreted statistically. The idea was originally developed by Bastian Larsen, for comparing different varieties of plants, but it may be equally well applied to the study of fertilisers. Even if the different parts of a field lack uniformity, the disadvantage will be annulled by the great number of control plots.

As has already been mentioned, the size of the individual plots in an agricultural experiment will be determined partly by the nature of the plant used in the experiment. For small or medium sized plants, suchas cereals, forage grasses and perhaps sugar-cane, 1/20 acre is most convenient. In the case of arboraceous plants, there appears to be no definite information as to the most advantageous area for the trial plots, since, up to the present time, very few trust-worthy field experiments with trees have been performed.

From the above account it becomes evident that great care and forethought must be exercised in planning and laying out agricultural experiments. Too little attention has been paid in the past to the intricacies of the problem, and much money and time have thereby been wasted.

(F. H. *in the Agricultural News.*)

THE PROPHET, HIS MANTLE.

BY

TRENT VALE.

The art of prophesying is a lost art. It can't be done now-a-days. In olden times the mantle of the ancient prophets would descend upon the shoulders of all kinds of interesting people and enable them to see clearly into the future. Quite clearly.

But that was years and years ago. The mantle has been mislaid. Perhaps the last of the prophets was a trifle careless, and never troubled to get it back from the dhoby.

Anyway it's lost. And, considering the enormous commercial possibilities that were lost with it, one is very surprised that an organised and sustained effort has never been made to recover it.

Of course there are millions and millions of prophets in every country in the world ready and willing to tell you all about the future of everything, but the point is that they are no good at the job. They never guess the right answer. And, if you accept their statements as to what the future holds in store and act accordingly, the only thing you can be reasonably sure of is that you are going to get left.

At the head of this cohort of present day prophets is the College Professor of Economics, who works out your problem with the aid of Todhunter's Theory of probabilities and his own complete ignoranee of events subsequent to *De bello Gallico*, whilst towards the tail of the list comes the languid lady with the peroxide hair and Egyptian cigarette, who casts your horoscope through a sphere of Japanese glassware and informs you that a dark man is coming across the water.

But by far the most prominent figure amongst this collection of clever people is the well-nourished, jovial fellow who occupies the most comfortable chair in the club, and whose sole stock in trade is a knowing look. And what this prophet can achieve with that knowing look, in the way of being stood whiskies and sodas, has got to be seen to be believed.

But no matter to which of these people you apply for information as to the future, the answer's a lemon as regards providing a basis on which to found a commercial proposition.

To prove which one has only to consider the past twelve months in Ceylon.

During the first quarter, roughly speaking, of last year, the three staple products, Tea, Rubber and Cocoanuts, were all doing very well indeed. Prices were high, prospects good, and there was a general atmosphere of prosperity throughout the whole Island.

During the next six months one of those products was destined to rise to a record of prosperity, whilst the other two were to fall almost to a record of adversity.

What a priceless opportunity for a rising young prophet to found such a reputation for reliable clairvoyance as would enable him to start in business on his own account.

But unfortunately there was no mathematical prophet to warn us that, if we continued to add to the surplus stocks of tea and rubber at home, those surrolus stocks would become still larger. Neither was there a financial prophet at hand to tell us that the result of adding to those surplus stocks would be a fall in price.

It was not until the catastrophe was upon us that the prophets got really busy. And then we were amazed to learn that they had known all along what was going to happen. They had known in May what was to happen in June, but they didn't tell us till July. Which was really very irritating of them.

After that the burning question of the hour was of course how to meet the unpleasant situation which we, through lack of proper prophetic guidance, ourselves had brought about.

Eventually we decided to adopt a policy of restriction of output. This was the easiest, simplest and most straightforward way out of the difficulty, and was altogether a splendid idea. At least we thought so at the time, and none of our local prophets got up on their hind legs to tell us otherwise. Yet, in the light of subsequent happenings it's, pretty evident that once more they've sold us a pup.

Just look at the horrid unkind things the people at home have been saying about us ever since. To listen to them anyone would think that we are simply profiteers, holding up supplies on purpose to create an artificial market.

In the English Review for December last, Sir Leo Chiozza Money says:—

" The position which obtains in tea and in rubber is an object lesson in the anti-social character of the world's existing organization of production and distribution."

And, after describing the steps which have been taken to put into force restriction of output, he goes on to say:—

" It is curious to observe that not a word of criticism of these attempts to fight cheapness by curtailing output has appeared in any of the organs which have, for the past two years, screamed at the British workman for not producing more.

More production has become a parrot cry, but it is directed not to those who condition output but to the humble working units of production who wield neither capital nor managing power.

The fight against cheapness is a fight against plenty, against industrial health, against social content.

" How is it possible to lecture labour on limitation and Ca' Canny when this sort of thing is going on ?"

Well, that's pretty thick, isn't it ? But that's not nearly the worst. Once these people start in to air their views about restriction of output, they don't stick to the point. They drag in all kind of other things as well. For instance one fellow asks:—

" How is it that these industries (*i e.*, Tea and Rubber planting) which have enjoyed many years of prosperity should come within an ace of bankruptcy after less than twelve months adversity ? Where were the reserves which a prudent business man would have built up against the occasional lean season which is bound to occur when one is dealing with the product of soil and climate ?" And mind you, when it comes to the question of reserves, it's not a bit of use talking about the additions to the Superintendent's bungalow or the new road to the factory: these kind of people simply will not understand.

The total amount of criticism which has been levelled at our long-suffering, illused, misguided heads would fill a book, in fact it would fill two books, but there is not much object in quoting further from it.

But doesn't this prove that the type of prophet we have in Ceylon is just about the mouldiest dud on earth?

Really you know it almost looks as if we shall have to cease relying on other people and try to get into the way of looking ahead ourselves. Of course we should find it fearfully difficult at first, because we've never had any experience, but after all we couldn't very well make more mistakes in the future than we have done in the past, could we?

What a splendid thing it would be if some clever fellow would start a correspondence course of instruction in "How to look ahead." You know the idea, twelve easy lessons and little pink books and all that kind of thing. Now wouldn't that be nice? (*Indian Scientific Agriculturist.*)

LETTERS TO THE EDITOR.

[*The Planters' Chronicle is not responsible for the opinions of its Correspondents.*]

Coffee Prices.

Dear Sir,—I would ask you to publish this letter as a necessary protest against the use (or rather the misuse) you have made of the adjective *Exhorbitant* in connection with *coffee prices*—*Vide* the first leaderette para in your issue of 19th March, 1921. I consider, and feel sure many will agree with me, that the same is both grossly misleading and utterly unjustifiable—had it appeared in the pages of say "The Gutter Grocers' Gazette and Dealers' Directory" it would have been unwarrantable, though possible understandable, as an attempt on the part of Distributors to gull the unfortunate consumers into the belief that their ways originated with the equally unfortunate Producers—but that it should appear in an ostensibly authoritative position in the pages of a Producers' Organ is unpardonable, especially in view of the fact that it apparently comes from the pen of one whose *duty* it is to *foster the interests* of the Producers not to traduce the latter.

Yours faithfully,
(Signed) C. H. GODFREY.

Note by Editor, P. C.—We are quite prepared to agree that the word "exhorbitant" was perhaps a journalistic hyperbole for the rosy reports previously received from London concerning New Crop Prices. But we do not think it quite so bad as the adjectives "grossly" and "utterly" with which our correspondent flays us. The remedy is worse than the disease.

PULLANGODE ESTATE,
28th March, 1921.

Rubber Restrictions.

Dear Sir,—Owing to my being away, I have only just seen the "P. C." of February 5th and succeeding dates.

I agree in the main with your Editorial of the 5th ultimo. It is practically only another way of putting what is contained in my letter appearing in your issue of that date, except your second paragraph, with reference to further restriction. Malaya and Ceylon must certainly lead the way, and if they decide to increase restriction to 50%, we are surely still doing our duty, and more, by remaining at 25%. If S. India restricts 50%, her cost per lb. will be so high that she will have to almost totally shut down, as she has not got the reserves that Malay and Ceylon have to fall back on. This would be a Gilbertian policy, since it would benefit nobody. I am not arguing about when it comes to the last ditch, and we have to close down through lack of funds; some Estates apparently have reached that stage already, and then there is obviously nothing more to be said, but I think it wise policy to hold on as long as ever possible for the sake of the goodwill of one's staff and labour.

S. India only sends home without restriction about 4,000 tons of rubber per year, against Malay and Ceylon 350,000 tons. The stocks in London at present are 60,000 tons. One has only to look at these figures to see that if S. India shut down entirely to-morrow it would make no difference to the market price of rubber, so let us restrict in fairness for the sake of co-operation, but don't let's flatter ourselves we are thereby influencing prices.

I was reading this morning the reports of two Ceylon Rubber Companies for the past season. They both produced close on 500 lbs. per acre (with restriction at the end of the year), and their costs, deducting expenditure on manuring, were 34 cents per lb. They spent, respectively, on manuring 11 cents and 3 cents per lb., and they paid dividends of 10% and 20% and carried big sums to reserve, depreciation, furlough accounts, etc. These are two ordinary companies in Kalutara, both of which I know personally. Now it is obvious we cannot begin to compete with these people, so why penalise ourselves by restricting to the same extent?

As regards my figures, which you say are not of much use, I think (I am not good at arithmetic) that 6d. at 14 rupees to the £ sterling is equivalent to 35 cents (not 22 cents as you reckon). Thus my figures show a net gain of 3¾ cents not a loss of 9¾ cents as estimated by you, so your arguments which are based on these figures fall flat. I would also point out that freight and home charges come to only 2½ d. or less, not 3½d. as mentioned by you, and this further invalidates your argument. It would appear that it is *your* figures which are not of much use.

In reply to "C. P.", I get the prices of rubber from the *Madras Mail* and from a weekly circular, *Daily Prices Current*, sent by the "Rubber Trade Association of London." They agree very closely. I find 1s. 2d. was the price quoted at that date, and now I see it is 1s. I assume it is for F. A. Q. (Fair Average Quality) which means ordinary good grade sheet. It is absurd to think that a price would be quoted which was only obtained for a few chests. I don't suggest restriction should be removed—it is an urgent necessity—but I do strongly think that in all justice Malay and Ceylon should bear the brunt of it, for reasons which I have stated. I am sorry I can't tell "C. P." that stocks are diminishing, as the papers keep on telling us otherwise, but as they are at present 60,000 tons, S. India, with a total *yearly* output of 4,000 tons, can hardly have much effect on them. It has been said that we must not start making distinctions, which is quite right as a general principle but fallacious in the present instance, where widely separated countries are concerned. A sliding scale of restriction would perhaps be best, below 200 lbs. per acre no restriction. 200 to 300 10%, 300 to 400 20%, and above 400 25%. Minor distinctions between Estate and Estate could not be tolerated.

I am afraid Mr. Norman's suggestions are not practical, however nice they may be in theory. Most estates *won't* shut down till they have *got* to through lack of money, and anyhow what good would it do if the whole S. India acreage shut down to-morrow, unless Malay and Ceylon had already done so. Legislation is the only thing that would make them do so, and that the Secretary of State has lately said he will not grant.

Yours faithfully,

(Signed) S. P. EATON.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" Coffee.

(BY CABLE.)

LONDON, DATED 1ST APRIL, 1921.

105s. per cwt. Market Quiet.

THE TRAVANCORE DEPARTMENT OF AGRICULTURE.

We have received the Report on the operations of the Department of Agriculture and Fisheries, Travancore, for the year 1095 M. E, corresponding to 1919—1920 A. D., which is of some interest to planters generally, and particularly to those who are resident in that State. The development of the department, and for that matter of many others, in Travancore, compares favourably with that of any other State and progress, although perhaps less meteoric than in some instances, has been steady enough, based on proper lines and generally working surely towards a highly efficient organisation. If only the State is as fortunate in its selection of the subordinate *personnel* as it is in its Director of Agriculture—Dr. Kunjan Pillai—ultimate success is assured, and a lasting benefit will have been conferred on the Travancore public.

This gradual evolution has resulted, in the year under review, in the establishment of agricultural circles, two of which have already been formed, and it is hoped to complete this organisation by the formation of three or four more circles in the near future. The staff has been increased during the year by the appointment of four additional agricultural Sub-Inspectors, one Poultry Expert, and one Mechanic. The Mycologist, whose appointment we welcomed last year, has been given an assistant temporarily, for one year, and he will be in charge of the newly opened cardamom experimental station in the High Range. A pepper farm also has been opened at Koni.

The rainfall statement is of some interest, and is worthy of comparison by planters in Travancore with Estate records. Peermade gives 181·88 inches and Devicolam 142·81, Kottayam 140·01 and Moovattupuzha 142·61. With the exception of Parur, (which had a 4 months drought), all the stations registered rain in 11 months out of the 12 except Moovattupuzha, where it rained in 10 months out of the 12. If we would make a suggestion regarding the statement, it would be that the Director should give also the number of days in each month on which rain fell. As the figures stand, the distribution would appear to be better than is usually experienced in planting districts, and here again we would repeat a previous suggestion of ours, that the Director would do well to get returns from more planting districts, where, we are sure, estates would oblige by sending him their usually reliable figures.

The soil surveys in two taluks were completed, and a fresh survey started in one taluk. They show the characteristic deficiency of Phosphoric Acid in Travancore soils and the presence of a high proportion of clay.

The Mycologist seems to have been hampered by the non-arrival of appliances ordered from England, and was mainly concerned with the cocoanut palm disease and the cardamom disease. The latter has been found to be caused by a parasite belonging to a species of Didymella. The experimental station at Goodampara in the High Range is engaged in finding out practical methods to combat the disease. The following experiments were started:—

(a) Raising healthy seedlings in a nursery isolated from the infected area.

(b) Spraying the leaves of the diseased plants with Bordeaux mixture, and liming the soil.

(c). Applying lime-sulphur to the soil in a very badly infected area.

(d) Experiments to test the effect of manures on diseased plants.

We await with considerable interest the detailed results of these experiments.

In view of the fact that the Travancoreans have gone in largely for rubber cultivation, and to a lesser extent for tea, it is rather surprising that no mention whatever is made in the report of either of these two products. The two chief functions of the Agricultural Department, the Director claims, *viz.*, experiment and demonstration, have received adequate attention—paddy, cocoanuts, tapioca, and sugar cane, seed selection, etc., have all received their share of the department's energies, but th important acreage under Tea and Rubber is ignored. It may be that no help or advice was sought, and that therefore none was given, but it seems to us that the department would have added considerably to its laurels by some effort in the direction of advice to native rubber growers on the various problems connected with the cultivation of Hevea Braziliensis. It is a fact that European planters in Travancore have for some time considered that the pioneers of rubber planting in that State committed an error of judgment in planting rubber exactly where they did, and that the subsequent clearings planted in other localities by the indigenous ryots, and produce companies are growing under better conditions than the European owned rubber. The remarks on rainfall given above are particularly a case in point. There are apparently a good few districts in Travancore with a fairly well distributed rainfall of from 95 to 130 inches where, to our knowledge, there is no European owned rubber. Yet, in certain districts we know of, rubber has been laid down in large areas under a rainfall of anything up to 200 inches, in spite of 3 months drought. A statement from the Agricultural Department showing rainfall and yields of locally owned rubber would therefore on this point alone be not only of interest, but of considerable importance to all who are interested in the plantation rubber industry of the East.

LABOUR CONTRACTS.

ORDER NO. 290, HOME (MISCELLANEOUS), DATED 25TH FEB., 1921.

The following notification will be published in the *Fort St. George Gazette* in English, Tamil, Telugu, Malayalam and Kanarese. The notification will also be republished in the District Gazettes of Malabar, the Nilgiris, Chingleput, Coimbatore, Tinnevelly and Madura :—

NOTIFICATION.

Under Section 4 of the Madras Planters' Labour Act, 1903, I of 1903, the Governor-in-Council is pleased to authorize the following persons to witness the execution of labour contracts :—

(1) Mr. Alexander Harold Mackie, Superintendent of the Labour Department, United Planters' Association of Southern India, Chingleput.

(2) Mr. John Netterville Albert Eaton, Assistant Superintendent of the Labour Department, United Planters' Association of Southern India, Coimbatore.

(3) Mr. John Harrison Bennet, Assistant Superintendent of the Labour Department, United Planters' Association of Southern India, Mysore.

(4) Mr. Alexis George Ashburton Dunning, Superintendent of the Labour Department, United Planters' Association of Southern India, Palamcottah.

(5) Mr. Bruce Peveril Tailyour, Superintendent of the Labour Department, United Planters' Association of Southern India, Madura.

2 The attention of the above officers should be drawn to paragraph 2 of G. O. No 821, Judicial, dated 15th May, 1906.

(By order of the Governor-in-Council)

R. RAMACHANDRA RAO,
Secretary to Government.

BRAZIL'S WHITE GOLD.*

Primitive methods, still in vogue, of collecting the milk of the rubber tree.

By William La Varre.

Gold in the Klondike, and diamonds at Kimberly are strikes of fortune that will be immortal, but gems and minerals do not compose all of Nature's treasure. I wonder if there has ever been a period in which romance was so interwoven with overnight wealth, gaiety, and extravagance as it was during the rubber boom in Brazil. It had its beginning back in 1770, when Priestly discovered that Brazilian rubber, which the aborigines knew considerable about in the early days of exploration, was an excellent thing with which to erase pencil marks. After Macintosh had found a method of waterproofing garments with the substance, and Charles Goodyear had hit upon a method of combining rubber and sulphur, thereby hardening it, the gummy produce entered more and more into common use. The people of Brazil realised that this new industry of the commercial world relied directly on the white latex which flowed in millions of native trees. They found themselves in control of a great enterprise which required no extensive machinery costly experiments, or risks; simply the bleeding of the wild trees and the hardening of the collected juice so that it could be shipped to the clamouring markets of the world, where it would bring fancy prices.

Of all Brazilian towns Manaos, over 900 miles up the Amazon, and accessible by ocean-going vessels of 7000 tons, felt the pulse beats of the new industry more keenly because it was in the centre of things—the frontier gateway—through which the produce must pass to the outside world. She sprang up suddenly from a little sleepy village, where every one dreamed of better days, but had done nothing toward attaining them, to a town of many thousands—a metropolis in which there was a seething mass of cosmopolitan life that came from everywhere and went to and from the interior, bringing several hundred thousand kilos of dirty looking balls of *borracha* weekly, the sale of which, at 17 and 18 milreis a kilo, would make the owners wealthy men. A milrei or a thousand reis, was worth about 25 cents in American currency, which fixed the price of raw rubber at about $2 per pound in Manaos during the years of its highest value. Some of these men who made fortunes saved all they could get, and after accumulating quite a sum left the country, others spent their earnings in planting seringals. But a good part of the people squandered their earnings from each voyage on the night of their arrival, after the manner of the reckless of all conquests.

In Brazil rubber is known as *borracha*, and the people like, when lapsing into fond musings, to call it "o ouro branco"—the white gold. During 1906 7 it was worth 18 milreis per kilo. The milk was taken from wild trees by natives, especially along the Amazon, Madeira and Negro Rivers and their tributaries, smoked into large balls weighing from 40 to 200 pounds, and sold to traders, who forwarded them to Manaos.

As in other sudden booms of wealth and fortunes, there came a slump in Brailian rubber. One of the troubles was that people wanted to work for themselves, and would not work for others, or even band together into corporations of their own. Each native in the interior wanted to go out into the forest, find his own wild trees, bleed them, and smoke the rubber for himself. They preferred to work independently in this manner, labouring when they pleased, and how they pleased, even if they made only $ 1 a day.

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*Abstracted from "The Pan American Union," November 1920, pp 462 476.

The story of what happened to the goose that laid the golden egg is an old one, but fable makers of ancient days were wise old people. History repeats itself. Some of the natives decided that they might just as well cut the rubber trees down and take all the milk at once instead of drawing a gourd full a day for thirty seasons. So, for several years, especially along the lower Amazon, they hacked away until, after several hundred thousand trees had been ruined, they realised that Nature cannot be hurried, however much in haste human nature may be. It was necessary to go easily and slowly—a few well placed and shallow cuts, penetrating the bark only, will ooze the liquid gold for nearly half a century.

The labour question was the thing that turned the minds of certain promoters to new fields, with thoughts that perhaps there might be a possibility of transplating those rubber trees to another country where labour would be very plentiful and cheap. The Brazilians took this idea with good-natured tolerance. "Well" they said:—"It would not hurt to try, but Brazil is Brazil, and the trees that thrive in Brazil are not likely to live anywhere else." The British gathered a few shoots, and carefully carried them into the East, where they knew labour was to be had. Transplanted in Ceylon, India and other colonies, they seemed to thrive well, and more young trees were brought over, and other plantations commenced. Then began the slumping of Brazilian rubber. It was discovered how cheaply rubber could be produced. Large companies became interested, and it was not many years before they were receiving nearly all of their raw material from west of the Pacific, and from plantations of their own. The amazed Brazilians saw their rubber fall in value from 18 milreis to 4 milreis per kilo, and they began to mood and dream again. Some few started cultivating rubber in Brazil, but as yet it is a small business in comparison with the eastern holdings, where labour can be had in abundance. To-day, Brazil no longer controls the rubber industry.

In 1919, I found myself nearly a thousand miles up the Rio Negro, in the midst of many poor natives who are managing to make a meagre existence from smoking the few gallons of milk they are able to collect each day during the few months that the wild trees will profitably bleed their latex.

It was at Cucuhy, frontier outpost of the Brazilian Government, on the Rio Negro, that I had the best opportunity of observing the natives—the "little men" in the rubber industry—at their work. The place was very lonely, and to pass the time I used to spend old days in the forest with the collectors. Of them all I remember more especially old Joaquin da Silva, a little wrinkled Caboklo, or half breed. He lived with his wife, a son of about 30 years, and two young children in a little thatched hut beside a twisting egarupe that flowed into the Negro from the east.

One evening old Joaquin was squatting down in one of the thatched huts where I lived on the Banks of the Rio Negro. He was telling me of the hard time he was having to collect enough rubber to provide himself with the necessary requisites of life as he knew it.

"It is very bad, senhor," he said, "my trees do not give as much milk as they used to, and I have to walk farther and farther to get 4 quarts of white *leite*. I am growing old, and soon I will not be able to walk so far : what shall I do then ?"

I did not answer him, because I did not know what to say. After a while of thoughtful silence I said " Joaquin, will you take me with you into the forest so that I may watch you get the milk ?"

" Certainly, senhor," he replied in his soft, lisping tongue. " If it does not rain, I will come for you at 6 of the morning—if it rains as it did this morning, there will be no use in going, for the milk will be ruined again ?"

At 6 the next morning I was dressed and waiting for Joaquin. With customary readiness he arrived at 7, and we started off together up the meandering egarupe in his little dug-out canoe. It was an ancient craft, barely large enough for two, and there was but an inch of freeboard when we had taken our places. Joaquin sat in the bow, with his blunt feet extended out over the water ahead of us, and paddled with short, quick stroke against the current. When shallow places were reached he stood up and poled, causing me to hold my breath for fear the next motion would cause the canoe to overturn.

At a bend in the stream, where granitic rocks out-cropped, we paused while Joaquin got out and fetched a small gourd bucket, leaf cups, narrow-bladed hatchet, and a bow and several fish arrows from his home, which was hidden from view behind the light green leaves of banana palms.

We continued up the ever twisting and narrowing creek for an hour, to another clearing in which there was a tumbled down shack. Here we left the canoe and, picking up our equipment, we took to a small trail that led into the forest. Joaquin picked up a handful of soft clay which he placed in the gourd bucket, and gave me a bundle of long, slender, and very light rods of pith to carry, which had been lying over a fallen log to dry in the sun. We soon had left the warmth of the sunshine behind, and were journeying through the dark dampness of the jungle.

Presently Joaquin stopped at the base of a tree around which a space had been cleared of undergrowth. The tree was perhaps a foot in diameter, and rose straight upward for 20 feet before it branched. The bark was somewhat furrowed and mottled with green, brown and gray tones. The leaves grew in clusters somewhat like our hickory, only larger.

Joaquin laid his tools upon the ground, and took one of the slender pith rods from me. Holding an end of the rod in each hand, he stooped down near the base of the tree, and encircled it with his arms. The pliable rod bent around the bark, and the old man overlapped the ends on the far side nearly a foot higher up the tree than the middle which faced him. He drove wooden spikes, cut from palm midribs, through the overlapsed ends, and through the pithy rod into the bark at intervals of 5 inches, thus securing the improvised band to the tree. From the gourd bucket he took some of the white clay, and with it puttied up the seam between the band and the bark of the tree, forming thus a smooth trough encircled the tree at an angle with the horizontal of about 45 degrees. He replaced the unused clay in the bucket, and picking up the small-bladed hatchet cut 1 inch gashes, one directly over the other in the bark above the trough. These cuts were carefully placed, and did not penetrate the wood of the tree. No sooner had this been accomplished than a thick white juice commenced to ooze from the cuts and trickle down over the bark, to drop finally into the smooth inclined trough and run down it to the lowest part. Joaquin quickly spiked a small leaf cup below the lower point, just as a tiny bead of white liquid fell. Other drops followed. The old man had been very skilful in his operations, hardly losing a moment. The whole task had been accomplished in three minutes.

We took up our tools and moved on to stop later at another tree, larger than the first, which already had a band around it and showed by the swollen and scarred trunk that it had been cut for many years. It took Joaquin but a moment to fasten a cup below the dripping point, and cut fresh gashes in the bark above. Then we moved on. The next tree had a band, and a cup half full of watery milk, which had been diluted by the rain of the previous day. The cup was emptied on the ground and refixed to the tree. Fresh gashes were cut, and we moved on again.

During the morning we passed 105 trees, most of which had bands already in place, and some of which had cups attached. Others which had not been previously bled had nothing. Whatever was lacking was attended to.

It seemed that everything that Joaquin needed in his business could be had in the surrounding forest. When a certain thing gave out he needed but to pause, look around into the forest growth, choose a certain species of plant or tree, and go and get the material from which he could fashion the necessary article. The bucket which he carried was a good example. It was made by slicing off the top of a large *cuia* fruit, about 10 inches in diameter, scooping out the inside, and binding strips of *tucun*, a fibre made from a palm leaf, about it, drawing the ends up over the top and tying them into a handle.

When we had come to the end of the trail, we paused to rest beside a cool, clear brook. After half an hour or so, we stretched our limbs, picked up the gourd bucket and small hatchet, and started back over the trail.

As we passed each rubber tree Joaquin, with hardly a pause, emptied the collected milk from the leaf cups, replaced them, and was on to the next tree. As we drew nearer the trees which we had first visited on our journey in the forest, the cups became fuller and fuller, until, finally, the last tree had a cup that overflowed. The pail by that time was full of thick white milk—one gallon of liquid rubber.

When we arrived at the egarupe, Joaquin took off his clothes and plunged into the water, to cleanse and cool himself. Then we poled down the stream, drifting sometimes, listening to noises and talking. I stuck my finger into the white liquid, and held it into the sunlight for a moment. The coating turned yellow and hardened, until I was able to peel it off as though it had been the finger of a rubber glove, and it was elastic.

"When do you cut the trees again—to-morrow?" I asked my companion as we came in sight of his clearing.

"No, senhor, it is not necessary to cut them again until day after to-morrow. You see it is this way. On the first day the milk does not run very well, and we only get one gallon of milk. To-morrow we will get more, perhaps 6 quarts, because on the second day the milk runs better. But on the third day it must be cut again."

"And how many years can you take milk from a tree?" I asked.

"That depends, senhor. I am very careful, and have been cutting some of the trees for 12 seasons. I begin at the bottom; the first season uses up about a foot of the trunk near the base. The next season I begin a foot higher, and so on. After several years the band is so high up the tree that I have to build a scaffolding to reach it, then I begin at the bottom again.

The little canoe slid up on the bank and we got out. Joaquin carried the bucket, and I followed him over the narrow trail that twisted in and out between banana palms. We came to a mud hut with a palm-thatched roof, and the old man stepped graciously aside, and with a wave of his hand bade me enter and make myself at home.

After a meal of pineapples, bananas and coffee, Joaquin took up a bucket of latex that his wife had brought in, and with his own full gourd led the way to the edge of the forest, while his son Joan and I followed. In a few strides we came to a small clearing, where the ground was covered with ashes. There was a shallow hole in the centre of the clearing, and beside it lay a large metal pan.

Joan went into the surrounding woods and returned shortly with an armful of short lengths of reddish wood, while Joaquin made a small conical-shaped fire in the hole. The wood split easily into pieces and was laid against the fire upright. Over this was placed a conical hood of iron, the apex of which had been truncated, and a round piece cut out of the edge of the larger circular base. This hid the fire from view. Air, entering through the cut in the bottom, blew the flames within the hood and sent a column of heavy smoke up through the small opening in the top.

The metal dish was held over this smoke for a few moments, bottom upward, and a skin which had formed around the inside from the residue of previously contained rubber latex was torn off. It had the feel of a thin sheet of rubber, almost as it is sold in the stores. Then the newly collected milk was poured into the pan, and the vessel was shoved up close to the smoking flue. Joaquin squatted down beside the tub of milk and dipped the smooth flat blade of a paddle into the liquid, coating it completely white. He removed it from the milk and held it, after allowing it to drip for a moment, in the smoke, turning it over and over so that all sides would be evenly touched by the smoke. The white coating gradually began to turn a creamy colour and to harden. The paddle blade was dipped into the fresh milk again and recoated with liquid. Again it was held in the smoke, and again as the acid in the smoke touched the alkaline latex it coagulated it into a dry elastic coating These operations were repeated many times, until there was a quarter of an inch coating over the blade.

With a sharp knife Joaquin then cut half way around the paddle edge, and ripped the covering from the blade. This he spread out like a mat and rolled it around the centre of a short, strong pole, and made it secure with strands of tucun fiber. Then this wrapping was held over the pan of milk, Joaquin holding one end of the pole, and his son grasping the other on the opposite side of the pan of milk. Joaquin scooped up a gourdful of milk and poured it over the wrapping, coating it white. Then they moved the pole over the smoke and hardened the thin covering of juice. Then it went back over the pan, and a new coating was added, and again the smoke was allowed to harden it. This process was repeated for over an hour, and gradually the mass in the centre of the pole enlarged and took the shape of a large ball, which grew larger and heavier with the addition of more milk, and contact with the acidic smoke.

"From a gallon of milk 2 kilos of rubber can be made," Joaquin told me. "To-day we will make about 4 kilos from all the milk. In 1906 we got 15 milreis for each kilo; now the Portuguese pay us only 2."

A week later, a trader in a blue batalao poled and paddled his way up the river, and announced himself on a loud sounding seashell. Joaquin and his son came over shortly with a small ball of rubber weighing 10 kilos.

"Twenty-five milreis," said the trader, "What do you want ?"

"Money only," replied Joaquin.

"Money only," questioned the Portuguese, as though he did not like the idea at all, and he did not, because he would be cutting his profits in half. "Don't you want something else ? I can only let you have 10 milreis in money; you will have to take the rest in goods."

Joaquin bought three yards of cheap calico stiffened with flour, a small box of tobacco, a box of matches, and each of them took a drink of *caxasa*. Usually they take a good part of their pay in *caxasa*, a watery looking drink made from cane juice that is so strong that, to quote the familiar expression one uses alcohol to dilute it.

As it took them three days to make that much rubber, which brought 10 milreis, 3 yards of cheap cloth, a 5-cent box of matches, with 25 cents worth of *caxasa*, one has to pause a moment to reckon how many days they would have to work to buy a pair of shoes—but fortunately Joaquin does not wear shoes.

This old man, his son, and his woman are but three of many hundreds of poor natives who are working during five months of the year, November to March, seeking out the wild trees and taking their milk. They represent the one-man way of producing rubber, and they are, in a way, typical examples of the one-man way of doing anything in these days of highly concentrated industry. From them, and their very crude methods grade the wealthier and better equipped gatherers, men who are able to employ a few helpers—from Indian tribes mostly—and the larger company holdings, where trees are cultivated and bled by highly paid labour. But compared with eastern development these are all mere infantile industries.

When I returned from the interior I found the people of Manaos very elated. "What is the matter ?" I asked a friend whom I met on the street.

"Oh, senhor, have you not heard," he asked, joyfully hugging me and patting my back after the custom of the country. "The cable reports that there is an insect that is killing all the rubber trees in the East, and soon there will be none left in Java, Siam, or India,—isn't that good news, senhor ?"

If it were true, I'd say it was good news—for Brazil.

But leaving aside all questions of plagues, and of waiting for some kind power to kill the rubber trees everywhere except in Brazil the word I have to give my friends in Brazil is: "Wake up." Unless they are to relinquish all control in one of the greatest industries of the world, they will have to cultivate extensively the hevea brasiliensis, that noble tree which thrives best in its native land, but which can be made to yield profitably in other climes if the commercial needs of a quickly moving civilization demand more material than Brazil is able to supply.

NEW MARKETS FOR TEA.

We published recently a short paragraph inviting Tea planters to get into touch with an importer in the Argentine who wished to deal in tea on a large scale, and this week we have been privileged to peruse some correspondence that has passed with an old Wynaad planter now in British Columbia who wishes to place South India Tea planters in touch with a large firm of distributors in Western Canada. This firm, which apparently is doing business on an extensive scale, at present buys all its tea in London, and these teas are placed on the market in Canada under the name of the country of origin, and are thus known as Assam Tea or Ceylon Tea. The idea is to work up a similar connection with South India, and to this end the produce would need to be sent through some central organisation and carry a distinctive label "South India Tea." There are some difficult points at once apparent in starting this trade Samples, for instance, sent now of the grades required, viz. B. O. P., O. P. and Pekoe might be something quite different from the bulk of the tea shipped four months hence, or even later. The firm's agents in London can of course buy just what is wanted, a factor they are no doubt fully acquainted with, and although purchase direct from the producer would doubtless mean a cheaper tea, it is a point that will require careful consideration.

Roughly the requirements are for large leaf grades, and the information concerning them is, (1)quantity of each grade sellers are prepared to ship per annum, (2) lowest price delivered at Victoria B, C., (2) approximately at what date shipments could be made.

The question of freight, up to quite recently, would at once have banned the possibility of over satisfactorily establishing this trade. We have seen however that the Pacific Mail Steamship Co. have started a direct line of steamers on behalf of the United States Shipping Board, and this service which runs between Calcutta, Colombo and San Francisco would appear to meet the difficulty, since it is very probable that through bookings will be accepted to all parts of Canada and the United States with transhipment at San Francisco. There would thus be transhipment only at two places, Colombo and San Francisco. This opportunity ought to enable planters to quote C. I. F. Victoria or Vancouver though here again a risk would be involved in the possible variation of freight rates whereas a large importer the other end ought to be able to arrange a through freight for some time ahead. It would therefore be more desirable if arrangements could be made to quote f. o. b. at a port in the Malabar Coast, or at most f. o. b. Colombo.

The suggestion may occur to some that individual estates might be allowed to deal direct with the importers, but this, we understand, is not desirable as there is much more likelihood of the market being successfully established if teas are all sold under the one mark, showing their country of origin, rather than in the name of separate estates. There will thus arise the need of some intermediary organisation, and this will no doubt receive the attention of the Executive Committee before whom, we understand the matter is being put. It is quite legitimate also to suggest that the importers buy from the South Indian Association in London who might collect and sell South India teas for us, but this does not meet the necessary point of placing South India teas f.o.b. Victoria by direct shipment cheaper than is now done with Assam and Ceylon teas, by purchase and re-export in London.

We would welcome in our columns any suggestions from planters interested which might help to elucidate the position as this new market for South India Teas would seem to be too good an opportunity to be allowed lightly to slip by.

INDIAN TEA ASSOCIATION.

ABSTRACT OF PROCEEDINGS OF THE FIRST MEETING OF THE GENERAL COMMITTEE, HELD AT CALCUTTA, ON 15TH MARCH, 1921.

CHAIRMAN.—Mr. T. C. Crawford was unanimously elected Chairman of the Association, and accepted appointment, subject to consultation with his office.

CORRESPONDENCE WITH THE INDIAN TEA ASSOCIATION, LONDON.—

(a) *Restriction of Crop.*—The progress of matters in connection with this question was fully explained in the last proceedings. The letter from the London Association now before the Committee gave further details regarding developments. It was explained that, in view of the impossibility of obtaining complete unanimity on the proposal that producers should reduce their 1921 crop to 80% of the average production for the five years, 1915-1919, the question had been considered whether it would be possible to obtain general agreement to a reduction of 10% leaving any further reduction to individual action. It was thought that an arrangement to reduce to this extent would be better than no agreement at all, but on making enquiries it was ascertained that even on this limited basis complete agreement could not be secured.

The General Committee noted the position as explained. They had now before them for examination the replies so far obtained to their circular No 16, dated 3rd March, in which they asked members to furnish figure showing, in respect of Indian controlled concerns, the estimated production for 1921 as compared with the average actual production in the five years, 1915-1919. Leaving out of account new gardens, and gardens with considerable areas of new teas coming into bearing, the replies to date showed that, against an average production, for the five years, 1915-19, of 56,444,975 lbs. the estimated production for 1921 of the concerns covered by the replies was 48,902,229, lbs., a reduction of, say, 13%. As some further replies had still to be received, the Committee directed that these should meantime be awaited.

INTERNATIONAL LABOUR CONFERENCE.—In the proceedings of the meeting, held on the 1st January, it was stated that Mr. N. B. Saklatvala, of Messrs. Tata Sons, Ltd., Bombay, had agreed to accept nomination as employers' delegate for India to the next meeting of the International Labour Conference at Geneva, and that the Association had been asked to submit the names of one or more gentlemen who would act as advisers to the delegate on matters concerning the Association; in this connection the name of the Chairman, Mr. A. D. Gordon, M. L. C., had been put forward, and, as arranged, the Branches and local Associations had been asked for the names of any additional advisers they might wish to suggest. In a letter dated, 7th February, the Assam Branch stated they would be glad if the Chairman would act as their adviser. In a letter dated 23rd February, the Darjeeling Planters' Association gave the name of the Chairman of that Association as adviser, and the Chairman of the Dooars Association, in a letter, dated 1st March, suggested the name of Mr. A. A. Goulden of Lankapara as adviser. These names were passed on to the Secretary of the Bombay Millowners' Association with the explanation that, if it were necessary for the advisers to attend personally, with the employers' delegate at Geneva, the matter would have to be reconsidered, as Mr. Gordon would not be able to be present. It was added that, in this event the Committee would probably wish to consult the Indian Tea Association, London, with a view to ascertaining whether any member of that Association could attend as an adviser in case of need.

The Committee meantime noted the position, and the papers were to be recorded.

THE AUSTRALIAN TEA TRADE.—It was stated in the proceedings of last meeting, that the Committee had addressed the Government of India, Commerce Department, asking that representations should be made to the Government of Australia on the subject of a preferential duty on British-grown teas entering the Commonwealth, that the Ceylon Government, on the request of the Ceylon Chamber of Commerce, had addressed the Australian Government in a similar sense, and that the Bengal Chamber of Commerce had been asked to support the representation to the Government of India.

A letter, dated 3rd March had now been received from the Government of India, Department of Commerce, pointing out that negotiations could not be opened with the Commonwealth Government in the direction suggested unless the Government of India were prepared to reciprocate by offering equivalent preferential treatment to goods, or selected goods imported from Australia into India; in other words, the acceptance of the proposal would open up the whole question of the adoption by the Government of India of the principle of Imperial Preference. A fiscal Commission was being appointed next cold weather to examine, *inter alia*, the question of the adherence of India to a scheme of Imperial Preference. Until the Commission had reported and a decision on the question of policy had been reached, the Government of India felt they were not at liberty to open negotiation with the Commonwealth Government.

Another letter on the same subject, dated 8th March, had been received from the United Planters' Association of Southern India asking what steps this Association were taking regarding it. The Committee directed that a copy of the correspondence with the Government of India should be forwarded to the Association for their information.

ARMY TEA PURCHASES.—Copies of a circular letter, dated 24th February, issued by the Controller of Contracts, Simla, had been forwarded to the Committee by the Assam Branch, the Dooars Planters' Association and the Darjeeling Planters' Association. The circular letter related to the requirements of tea for the army for the three years commencing 1st April, 1921, and the request was made in each case that, if the Associations addressed desired to tender, their offer should be submitted by 15th March

It was proposed to deal only with the Association direct, and not with individual estates which might be members of the Association. The Associations specified had forwarded the papers to the General Committee for disposal.

The General Committee did not consider that the matter was one in which the Association as such could take any action. They understood, indeed, that the Controller of Contracts had already addressed the Calcutta Tea Traders' Association on the subject, and that this Association had brought the matter to the notice of their members. The three Associations mentioned above were to be informed accordingly.

CONDITION OF TEA CHESTS:—In a letter, dated 9th March, the Secretary of the Calcutta Liners' Conference forwarded extract of a letter, dated 16th February, from the London Secretaries to the Conference in which they drew attention to the fact that considerable claims had to be met in London for damages in consequence of the very inferior packages and cases in which tea is at present shipped. They accordingly requested the Calcutta Conference to impress on the constituents of the different Associations the necessity of improving the character and stoutness of the packages.

The Committee directed that all members should be circularised in terms of the communication from the Conference. It was also decided to request the Conference to provide the Association with particulars and details of consignments, which were noticeably inferior in character and stoutness of packing, in order that the matter might be taken up with the members of the Association concerned.

THE INDIAN TEA CESS ACT, 1903: (*a*) *Amendment of section* 3.—In a letter, dated 12th March, the Government of India, Department of Industries, referred to Act No. I of 1921 recently passed by the Indian Legislature amending section 3 of the Tea Cess Act of 1903. The new Act authorised the raising of the maximum rate of cess leviable under it from ¼ pie per lb. to 8 annas per 100 lbs. It was explained, as of course was within the knowledge of the Committee, that it was not proposed to levy the cess at the maximum rate at once, and that the Indian Tea Cess Committee had suggested that, with effect as from 1st April, 1921 the rate of cess should be raised to 4 annas per 100 lbs. The opinion of the Association was invited as to whether this rate was suitable. The Committee decided to reply that they were in full agreement with the proposal.

(*b*) *Representation on the Committee.*—A letter, dated 9th March, had been received from the Government of India, Department of Industries, intimating that Mr. R. Langford James had resigned his seat on the Indian Tea Cess Committee, and asking the Indian Tea Association to nominate a successor. The Committee nominated Mr. R. Graham to fill the vacancy thus caused, and the Government of India were to be notified accordingly.

TRADE WITH ROUMANIA.—Under cover of a letter, dated 2nd March, Mr. A. D. Gordon forwarded copy of a letter, dated 16th December, 1920 from the Banca Romaneasca of Bucharest, to Mr. W. L. Travers. The letter discussed the possibility and advisability of a direct trade in tea between India and Roumania, and also the establishment in the latter country of distributing centres for tea and other Indian products intended for sale in those central European countries served by the Danube, and also in Southern and Eastern Russia. The Committee directed that copies of the letter should be sent to the Indian Tea Cess Committee and to the Calcutta Tea Traders' Association.

NOTES AND NEWS.

Manaos.

The article on Brazilian rubber which we reproduce elsewhere reminds us of our visits to, and experiences in, Manaos and on the Amazon and its tributaries generally. In 1910 we remember the magnificient opera house, the electric tramways, the busy-wharves, motors flying about and, by no means least, the costly attire of the Brazilian ladies—harem skirts were then just coming into vogue. All made out of people like poor Joaquin for there is no doubt of the scandalous treatment meted out to the seringueiros The fortunes were soon dissipated, and we hear now that Manaos is largely deserted, the weeds growing between the tram lines, and in one instance at least, a fine car rotting in a deserted village now overgrown with jungle, on the Rio Madeira.

The Y. M. C. A.

The Editor is Honorary Treasurer of the Y. M. C. A. in the Coimbatore District, and appeals to all planters to support this very deserving association. Particularly he appeals to those who have experienced the benefits of the Y. M. C. A. organisation during the war. A contribution to the local branch is indirectly a contribution to the Red Triangle Fund which continues its excellent work among soldiers, since the more self-supporting the local branches become the less severe is the strain on the National Council by way of grants-in-aid.

Coffee Prices.

Messrs. Leslie and Anderson advise the following :—

10—3—21. "With the exception of special parcels of Fine Coffee bought by the Home Trade, the market shows signs of weakness, and we still think prices for East India are bound to go lower. Taking this view we have sold 2 parcels of Coorgs per s. s. *Clan Mackinnon* at 80s. per cwt. C. F. I., and are ready to go on at the price. Fine Mysores (only 40 bags) have realised 110 to 121 per cwt. for Bolds, and 80s. to 91s. per cwt. for ' B's. in auctions this week. Superior Santos is being pressed for sale at 48 per cwt C and F. which makes Mild Coffees look dear."

17-3-21. "In the absence of further offerings of East India in auctions we have nothing fresh to report. We still believe that Fine Mysores, and possibly Coorgs suitable for the Home Trade, are likely to sell at satisfactory prices, but any Coffee that does not suit their requirements will be difficult of sale. The demand for Coffee heading towards Germany has ceased, and in addition to legislation now being passed which must have the effect of restricting trade with Germany, paragraphs in the press have intimated that they intend to boycott exports from U. K.

"Good Coorg marks have been sold down to 76/- per cwt C. F. I. and, while sellers are ready to go on at the price, buying has ceased at the moment. About 400 bags Mangles Coffee ex s.s. "CLAN MACKINNON" have been sold at 77s per cwt C. F. I."

Rubber.

"Macson" in the *India Rubber Journal* says the tapping restrictions so far carried out upon the alternate day system have been quite a success, and constitute almost a new discovery in the art of profitably running plantations. Great economy in labour counter-balance the falling off in output for the first year, but thereafter the decreased yield is only 15 to 20%

The mouse which this mountain in labour has brought forth has, however, a tail. These facts we are told are not bull points for the market, but they certainly hold out a means of getting over the present crisis. London stocks on 10th March were 60,400 tons.

Rubber Research in Ceylon.

Recently the Ceylon Government appointed a strong committee to administer and control rubber research work here in future in place of the Rubber Growers' Association and the Rubber Research Scheme.

The Director of Agriculture is the chairman of the new committee.

Steps will be taken immediately to get a chemist, a physiological botanist, and a mycologist.

A travelling inspector and a secretary will be appointed after the new technical officers are got. A temporary secretary is now working.

A London advisory committee will be appointed under the directorship of Professor Dunstan, of the Imperial Institute, to control continued chemical research on vulcanization, etc.

Emphasis will be given here in future to mycological and physiological investigations and research. A programme of work for the current year will be drawn up by the chairman of the new committee and other officers of the Agricultural Department.

The Government grants and funds at the disposal of the Rubber Growers' Association and the Rubber Research Scheme will naturally go to the new committee.

Subscription of members of the new Rubber Research Scheme would be:

	£.	s.	d.
No output	10	10	0
Output up to and not exceeding 100,000 lb. ...	15	15	0
Exceeding 100,000 lb. not do. 200,000 lb. ...	21	0	0
Do. 200,000 lb. not do. 300,000 lb. ...	26	5	0
Do. 300,000 lb. not do. 400,000 lb. ...	31	10	0
Do. 400,000 lb. not do. 500,000 lb. ...	86	15	0
Do. 500,000 lb. not do. 600,000 lb. ...	42	0	0
Do. 600,000 lb. not do. 700,000 lb. ...	47	5	0
Do. 700,000 lb.	52	10	0

The subscription of companies the whole of whose rubber estates are situated outside Ceylon, will be subject to a 15 per cent. rebate of the above rates.

The laboratory and bungalow so far used by the Rubber Growers' Association will soon be taken over by the new committee.

Steps will be taken immediately to enlist the support of all rubber producers of Ceylon with a view to extending research work.

Rubber research, so far more or less neglected here, is of prime importance, as it will help the cultivation of the best type of tree, the increase of efficiency of tapping methads, and the tackling of disease, etc. The Ceylon Government and the planters are really learning something from the Dutch East Indies, and old prejudices are rapidly giving away.—(*India Rubber Jonrnal*) Ceylon correspondent.

Harrisons and Crosfield.

The directors have declared a dividend on the cumulative preference shares at the rate of 6 per cent. per annum for the three months ending March 31st, 1921. Dividend warrants will be posted on March 30th to shareholders registered upon the books of the company at that date, including approved transferees whose transfers have been lodged not later than March 15th. Income tax will be deducted at the rate of 6s. in the £.

The Tea Trade at Home.

We are unable to report any material improvement in the general trend of affairs, writes a London correspondent of the *Englishman*. Financially there is no change, and the stringency that our market has been suffering for quite a long time still exists. Foreign exchanges offer no relief to the would-be exporter. Consequently that part of the tea-trade is lying well nigh dormant. The future looks dark to most people who are engaged in commerce, but many things may happen during the next few months.

Next week we hope to be able to send our readers the statistics for February.

The sales this week comprised 53,272 Indians and 21,507 Ceylons. In all 74,779 packages on Monday. 28,925 chests Indian were on offer. Common leaf was again in active request and sold at firm prices, but grades from 10d. per lb. upwards ruled for the most part easier. Brokens in the range of from 9d. to 1s. 4d. were the weakest feature. A quantity of medium and fine was taken out. Common leaf sold from 4½d. to 5d. plain. Medium leaf and broken from 7d to 10d. Good medium leaf and broken from 1s. 0d. to 1s. 5d. fine to the finest from 1s. 6d. to 3s. 0d.

On Tuesday, 21,507 packages Ceylon were offered. The quality of the teas was inferior to what we have been having, and the general tone of the room was very lethargic, large blocks of tea being taken out, resulting in very irregular prices, which for the most part show a general drop of about a penny per pound. Common tea sold at 6d.

On Wednesday, the remainder of the week's offering of Indians, some 24,347 chests were offered. The quality showed a market diminution as compared with last week, and even with Monday's sale, consequently prices were low, and a large quantity was withdrawn.

On Thursday, 2 000 chests Java sold very cheaply, common tea down to 2¼d.

India's Trade Balance.

The Department of Statistics, India, in publishing the trade returns for February point out the notable decrease in imports and the corresponding decrease in the adverse balance of trade. This is a very important feature in connexion with exchange. The imports fell by no less than six crores to 25 crores, the exports were 18 crores, the difference of adverse balance being seven crores. The adverse balance in January was 12 crores, in December 12 crores, in November 13 crores, and we have to go back to July last year when the adverse balance was so low. June 1920 was the first month of excess of imports of private merchandise over exports, and since that time the adverse balance continued high until recently when the decrease in the imports was noticed. In February there was a decrease in the imports of cotton piece goods by 13 per cent. railway plant, and rolling stock 40 per cent., motor cars 34 per cent. The imports of sugar and motor cars were the owest recorded since January, 1920.

The Planters' Chronicle.

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Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" Coffee.

(BY CABLE.)

LONDON, DATED 8TH APRIL, 1921.

106s. per cwt. Market Steady.

MOTOR TRANSPORT.

We saw a picture the other day of a street scene in New York, which apparently was published to prove how very thoroughly motor power has ousted the "noble animal" of our school books from the place of pride in the transport of goods, and passengers, in America. Certainly, the solitary one H. P. hay-devourer (as Mr. Ford has it) shown in the photograph looked much as if he were contemplating throwing himself beneath the wheels of the nearest Juggernaut, and thus finally giving up the unequal struggle in one last glorious act of martyrdom. Well, we ourselves played the part of Juggernaut, at least our car did the other day, the remaining member of the cast being a one bullock power cholam straw consumer, but it will be a long time before the motor lorry, car, tractor or passenger *char-a-banc* will have made obsolete the slow moving but always-gets-there bullock bandy, jutka or country plough. in this part of India. In the capitals of course, the transition has already begun. and has in fact largely progressed towards the final elimination of all but motor traffic; a position due very largely to the ease with which it is possible to manœuvre even the larger and more unwieldy lorries, the spaciousness of the roads, their smoothness, and above all the proximity of garages and repair shops and the plethora of skilled drivers. It is obviously a very different proposition when an estate in some remote planting district is faced with a cart strike perhaps, and seeks alleviation of the position in the introduction of the motor lorry to bring in food and remove produce over a matter or 50 or more miles of the worst roads in Asia from or to the nearest Railway Station.

It so happens that our view of the New York photo coincided with the opening of the Peermade Ropeway connecting that district with the motor lorry service from Mundakayam, and also about that time we were privileged to see a motor lorry that had arrived on the West Coast for an Estate in the Wynaad. . Then there was the account in the *Mail* of the demonstration of the F. W. D. lorry on the Anamallai Ghaut to which is to be added a pamphlet we have received from America on this subject, so that it looks very much as if some fate was guiding us to say something in this issue about motor transport.

We will deal first with Mr. J. A. Richardson's venture, because it is not generally known that the Motor Transport Company, of which he is the Managing Director dates back to 1912—and these were early days for such aids to transport problems in planting districts. The cart men about that time finally put the lid on it by raising the hire from 3,8 to 5,- as far as we remember, for the journey of 35 miles from Kottayam to Mundakayam. Apart from this, the trip occupied anything from 10 days to three weeks as it was the custom of the bandymen to stop at their homes on the way, and do a bit of cultivation on the paddy patch, in anticipation of payment the other end. The road has had its vicissitudes—but has generally been in fair repair, there are no ghauts, and only one or two moderate climbs and sharp turnings. Conditions were therefore very favourable, and the introduction of lorries was immediately successful. Not only could they transport goods at very little above the cart rates, but the District was brought within a few hours of Kottayam (its only outlet to Cochin). A much larger quantity of stuff could of course be brought up at one time, congestion in factories ceased, and there was a general feeling of relief in the safety from theft. The passenger busses were always packed, and the facilities given for transporting labour had, we have no doubt, an important bearing on the question of recruitment of coolies.

Now that the ropeway is running thus connecting the motor lorry service with Peermade direct, we have no doubt the old service will expand and extend its usefulness. We are sorry we have no figures of costs, etc. to divulge, but we believe we are right in stating that some of the lorries are still going strong after doing over 100,000 miles in the last 8 or 9 years. They were, we believe, Halleys, and, if we were asked the secret of this long and honourable career, we should say it is because a first class vehicle was placed in the hands of a first class Engineer, for without this latter condition the Cars could never have stood up to the work. Mr. Richardson has paid a tribute to Mr. Standen's work, which is thoroughly well deserved, and we make special mention of it because it is one of the essentials of success in any District.

In America recently, a questionaire was sent to each of approximately 15,000 farmer truck-owners in the district known as the "Corn belt," and from the replies received may be gathered some idea of the advantages gained by the introduction of motor traction. Briefly, these are stated to be:—

Change of markets, the trucks enabling them to place their produce on a market at an average distance of 18 miles against 7 miles.

Saving time. As compared with horses and waggons, the trucks save about two-thirds of the time required for hauling to and from these farms.

Custom hauling. The average amount earned in hauling for others was $132.

Hired help was reduced, saving an average of $209 per year.

It will be seen that saving time and opening up new markets were the principal advantages claimed, and these are the points we must apply in considering the matter in planting districts. Opening up new markets is of course a misnomer here, but it has the same meaning as "making short work of long distances," and in some cases may mean sending straight through by lorry instead of transhipping at some half way house. The percentage of time which a truck is run without a load has a direct bearing upon the cost per unit of hauling with it. This point is important to us. In America, the average of the experiments we are dealing with showed that 34% of the time there were return loads. In our own experience the produce sent down by an estate was always more than the stuff brought up, but by how much we would not care to guess. This brings us to the desirability in a planting district of co-operative hauling as it would often be the case that one estate having a down load but not an up load could arrange a mutual trip with another estate having an up load, but not a down. The more people there were in the concern the less likelihood there is of an empty journey, but, of course, in planting where seasons are distinct equally for down and up loads, the empty journey must always be with us to a certain extent, although fortunately we have the steady weekly rice imports to save us from long periods of barren return journeys.

The only disadvantage these American farmers met with was "bad road," and this is equally the greatest drawback in South India to the successful introduction of motor transport. Next to this the problem is repair shops, particularly with some lorries which are nothing more or less than a mass of complicated machinery mounted on four wheels. The road question, we believe, will receive further consideration from Government at an early date. We are all aware of the recent decision to assist District Boards with a grant for trunk roads of Rs. 500 per mile. This in itself was a notable step in the right direction, but does not go far enough because, although it permits of a slight improvement in the matter of annual repairs, it does not by any means solve the question of renewals. There is a standard "life" in engineering circles for metalled roads, which varies slightly under differing local conditions from three to five years. But in the Coimbatore District, for instance, the position is such that renewals do not take place more than once in about 12 years. The increased allotment will perhaps reduce this by a year or two. But this will not help very much, and is in fact by way of being a case of good money being thrown after bad. Other districts are in the same position, and now that Superintending and Executive Engineers of the P. W. D. are to be responsible for the supervision of District Board "trunk" roads, it is quite probable the question will be re-opened as the District Board Engineers now have a better channel by which matters may be represented to Government than they had previously.

The other question is one of repair shops, and here without going into any details we may just lay it down that, unless a first class Engineer is in charge of the business, with a proper repair shop at one end, in long distances, Engineer and shops should be duplicated, no known motor lorry could stand up for the 6½ years at which the American farmers average the life of their trucks, let alone the 8 or 9 years of the lorries in Mundakayam. In the hands of incompetent Engineers and the type of driver generally met with in this country, the lorry has about as much chance as a bag of confetti in a blast furnace.

Admitting all this, and presuming that the matter of roads and repair shops is satisfactorily handled, one asks what is the cost of running motor lorries compared with cart transport, and particulary can the lorries take a stiff ghaut like the Anamallai road which is probably quite the most difficult in Southern India for motor traffic. We have seen in the "Madras Mail" the account of the demonstration on the Anamallai Ghaut carried out by the F. W. D. people, and we know that other types of lorry have successfully made the journey so that it is no longer a matter of can it be done, but how much does it cost? The Transport Committee of the Anamallai Planters' Association, we understand, and certainly hope, will issue a report on the recent trials, so that it is not our province here to judge one make against another. We have, however, been privileged to see a detailed estimate of the running costs of the F. W. D. three ton lorry, based on the recent three weeks demonstration, and they follow very closely, as a matter of fact, the figures put up by the American farmers in the "Corn belt."

First, they may be said to agree in the fact that the greatest cost in running a lorry is the item of depreciation, which the F. W D. people put at Rs. 300 per month on a total capital of Rs. 14,500 for four years. This is probably high, as with better roads and proper supervision the truck should last, say 6 years, in which case the depreciation would be Rs. 200 per month. Petrol averaged four and a half miles per gallon, which could very easily be improved upon though with such a ghaut it is doubtful if the American average of 8 miles for the two ton truck to 11·8 miles for the half and three-fourth ton trucks could be reached. It is possible an average of 6¾ miles could be made when the corners and road conditions generally have been improved. In comparing costs with the present bandy system it is as well, however, to be conservative. For comparison, then, the F. W. D. figures should be used and these with the addition to depreciation and petrol, of Engine oil, gear oil, tyres, wages, grease, Insurance, and sundries, come to 3 tons per mile for 15 5/12 annas, say roughly 5 1/6 annas per ton mile. Compare this with the bullock waggons 3 to the ton at Rs. 10 each for 41 miles—the distance over which the lorry travelled each trip. $\frac{29}{41}$=·707 rupees, or practically 11½ annas per ton mile.

There is thus a big margin, sufficient it would seem to pay for the establishment of repair shops and an Engineer, and still make a saving on the present cart rates, even if the cart could do the journey in one day instead of two or three as at present. Certainly, without the extra establishment, it would be an impossibility to maintain the service at a per ton mile rate of 5 1/6 annas, as this figure does not take into account any cost of repairs. In the American experiment, comparatively few men who had owned trucks for more than a year had been free from expense for repairs. It is not possible from the reports to obtain an accurate figure as to the average annual repair costs for the entire life of the truck, but the authors of the pamphlet consider they can make a fair charge of $150 per annum for a two-ton truck which costs $ 2,000. This is 7½ per cent., and in the case of the F. W. D. with an initial cost of Rs. 14,500 would be Rs. 1,087 per annum, say, Rs. 90 per month, and thus increase the cost per ton mile by 10 per cent. Perhaps the F. W. D. people will consider this point and correct us if we have over-estimated it.

There is not the slightest doubt that, if properly handled, this transport problem is solved by the motor lorry even in the Anamallais so that in districts favoured with better roads and a less difficult ghaut the introduction of this form of transport need no longer be delayed. We have mentioned in the beginning of this article, the Wynaad. From Calicut to the foot of the Vayitri Ghaut the road is an excellent one, and there are several motor buses running over it. The Ghaut is itself only 8 miles long, and has but few zigs; mostly well laid and easy to negotiate. The surface at the moment is not good, but is infinitely better than most roads in planting districts. The great advantage to the Wynaad of motor lorries would undoubtedly be in the recruitment of labour. From Calicut, unless he is provided with bus expenses, the cooly has to walk 37 miles to Vayitri, 48 to Meppadi and 70 to Pundalur. With a stream of lorries going up the cooly will enjoy his joy ride instead of dreading the long walk, and in many cases a load of passengers will solve the bugbear of empty up journeys. As with most things in life—especially planting life—it is no use rushing into a costly scheme without careful consideration followed by a quantity of spade work. We honestly believe that such preliminary preparation will show a distinct advantage in favour of motor transport in planting districts, and have no doubt the members of planting associations will agree with us now, and will be justified later on if they decide to take this important step. Particularly, reverting to the road question, they will find the authorities more ready to repair and maintain in order roads carrying motor lorry traffic, than to spend large sums of money on the possibility of such traffic coming into existence, in some dim future.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore,
13th April, 1921.

SECRETARY'S REPORT NO. 14.

1. ROADS.—Under date the 5th instant, the Collector of Salem writes as follows:—

> "I have the honour to inform you that the District Board has expressed its inability to subscribe Rs. 5,000 for the proposed Vaniyar—Manjavadi Road on the Shevaroys."

At the request of the Central Travancore Planters' Association, the Government of Madras has again been addressed with reference to the necessity for repairing the Periakolam—Kuruvanath Road,

2. FINANCIAL AID FOR TEA.—Owing to the small number of replies received from Tea Planters to the Secretary's letter, published in the *Planters' Chronicle* of the 12th March, the Executive Committee have decided to take no action for the present.

3. GRANTS OF LAND TO DEMOBILIZED PLANTER SOLDIERS.—The Government of Madras write to say that the Government of India have notified that they do not propose to take up the question of making free grants of land anywhere in India to demobilized British Officers or soldiers, and that the request of this Association cannot be acceded to.

(Signed) C. H. BROCK,
Asst. Secretary.

INDIAN TEA ASSOCIATION.

ABSTRACT OF PROCEEDINGS OF A MEETING OF THE GENERAL COMMITTEE, HELD AT CALCUTTA, ON TUESDAY, 29TH MARCH, 1921.

Restriction of crop.—In the proceedings of last meeting particulars were given of the figures compiled from the replies so far received from members to circular No. 16, dated 3rd March. In this circular members were asked to furnish figures showing, in respect of Indian controlled concerns, the estimated production for 1921 as compared with the average actual production in the five years, 1915 to 1919. The position on 24th March, taking into account all the replies received to that date, and leaving out of account new gardens, and gardens with considerable areas of new teas coming into bearing, showed that, against an average production, for the years 1915 to 1919, of 71,418,102 lbs., the estimated production for 1921 of the concerns covered by the replies was 62,185,200 lbs., a reduction of, say, 13%. These figures had been cabled to the Indian Tea Association, London, on 24th March, and they were now to be recorded.

POSITION OF THE 1920 CROP AS AT 1ST APRIL, 1921.—In a letter of 21st March, the Indian Tea Cess Committee's Commissioner for India asked whether the figures usually collected showing the position of the past season's crop as at 1st April would be again available; he stated that he found these of great assistance to him in estimating the consumption of tea in India. The Committee directed that the usual circular should be issued asking members for the figures.

REGULATION OF SHIPMENTS FROM CALCUTTA.—The Committee discussed the position regarding shipments from Calcutta. Their information from London was that there was as yet no improvement in the storage position there, and it was considered expedient to issue a recommendation to members to restrict their shipments from Calcutta during April to 6·4% of their crop for the season. The Indian Tea Association, London, were to be informed by cable to this effect, and they were to be asked to telegraph immediately if there were any alteration in the storage position in London meriting an increase in the percentage thus recommended to members.

THE INDIAN EXPORT DUTY ON TEA.—The Committee had noted that, in the debate on the budget in the Legislative Assembly, Sir Frank Carter's motion for the abolition of this duty had been negatived. They considered it very regrettable that the Assembly should not have taken a more reasonable view of the position, but the result was not unexpected. The following cable, dated 24th March had been received from the Indian Tea Association (London) on the subject:—

India Office in view of budget position hold out no hope of abrogation of export duty. Suggest that you should press for modification on more equitable basis before budget finally passed.

It did not seem to the Committee that any useful action could be taken on this telegram, which should, they directed, be recorded.

INTERNATIONAL LABOUR CONFERENCE.—As stated in the proceedings of last meeting, the Secretary of the Bombay Millowners' Association was informed of the names of those gentlemen who had been nominated to act as advisers, on behalf of the tea industry, to Mr. N. B. Saklatvala, the employers' delegate to the meeting of the International Labour Conference at Geneva next October. It was also explained to him that, if it were necessary for the advisers to attend the Geneva Conference personally, the matter would have to be reconsidered, as Mr. A. D. Gordon, M.L.C., who had been nominated as one of the advisers, would not be able to be present.

A letter, dated 15th March, had now been received from the Bombay Millowners' Association in reply. It confirmed that the advisers to the employers' delegate would be required to proceed with him to Geneva, and added that, if the Conference followed in any way closely the lines of the previous one held at Washington in 1919, the advisers would be required to represent the delegate on the numerous small Sub-Committees into which the Conference would be split up, and in which the greater part of the work would be performed. While, therefore, Mr. Saklatvala would doubtless be very glad to confer with the gentlemen nominated as advisers before proceeding to Geneva, the Committee would, it was hoped, understand that it was essential that the advisers nominated should be in a position to accompany him to the Conference.

The Committee discussed the whole matter at some length. They were strongly of opinion that the industry ought to be represented at the Conference by an adviser or advisers. Article 389 of the Treaty of Versailles stipulated that each delegate to a meeting of the Conference might be accompanied by advisers, "who shall not exceed two in number for each item on the agenda of the meeting." This would appear to limit the number of advisers on behalf of any particular industry to two. In regard to one of these appointments the Committee thought, on further consideration, that it would be of great advantage if Colonel Kennedy were available, and were willing to act, and they decided to ask the Indian Tea Association (London) to get in touch with him with a view to ascertaining whether he could go to Geneva. The names of other gentlemen who had been suggested were to be mentioned to the London Association.

COFFEE PRICES.

The following interesting report comes from Messrs. Leslie and Anderson, under date 24th March, 1921:—

" We have had only one auction this week in view of the Easter holidays. The next auction does not take place until the 5th April, so we have a long gap between sales. This is very unfortunate for the bulk of the " Clan Mackinnon" consignments have still to be dealt with, whilst the " Clan Stuart" shipment will certainly be ready by the later date, making a large quantity to deal with, with the prospect of the "Clan MacMaster" consignments also being ready for sale early next month.

"Only a few lots of Coorgs and Mysores *ex* s.s. "CLAN MACKINNON" were included in the catalogues this week, and the market was again very irregular. Mockett's S. & L. Fine Bold Mysore realised 136/6 per cwt, Good Liquory Coorgs competed for by the Home Trade realised up to 108/- per cwt. for the Bolds, whilst Medium Coorgs realised between 89/101 per cwt.

"With these wide variations it has been quite impossible to give close valuations, the only explanation for the variations in price is that the Home Trade fancy some lots and leave others alone. Arrivals of Central American still continue large, and we still hold the opinion that prices of Mild Coffees must decline later on. Those who are benefitting by present high prices for their Coffee are fortunate."

By the same mail we have received details of prices obtained at the auction, including the Mockett's S & L mentioned above. The list is from R. J. Rouse & Co., Ltd:—

MARK	O.		A.		B.		C.		P.		T.	
Hunchi Betta ...			32	94/-	21	ns	2	58/-	4	ns	4	53/6
Deverah Cadoo ...			40	92/6	34	82/6	2	58/-	11	ns	6	58/-
HP Doobla ...			58	94/6	53	ns	22	ns	17	ns	10	ns
Arbuthnot's Yemmagoondi ...			153	93/6	103	76/-	8	54/-	28	89/-	21	55/-
3 Arbuthnot's Yemmagoondi ...			46	90/-	29	ns	2	58/-	9	88/-	7	55/-
Craig's Eliza ...			112	93/6	70	76/-	4	58/-	19	83/-		
Watakadu ...			39	90/-	35	79/-	3	51/-	9	ns		
K TT ...			67	105/-	83	93/6	28	71/-	24	115/6	6	65/-
Elliots ...			28	108/-	18	97/6	18	75/-	4	120/6	3	59/6
Mockett S. & L. ...	45	136/6	31	116/-	10	85/-			15	146/-	7	77/-
P Umbidy ...			14	111/6	20	102/6	25	72/-	8	125/-	7	69/-
					14	102/-						
Grant Hill ...			20	ns	16	90/-	11	70/-	5	ns	3	ns
CBS Karrie Kollie.			11	89/-	15	76/-	2	50/-	3	85	2	51/-
Woods Suntikoppa ...			12	101/-	11	83/-			3	100/-	2	58/6
Havina Kadu ...			24	108/-	52	91/-	10	77/-	5	120/-	3	60/-
IM Bala Kadoo ...			31	91/6	25	75/-	8	50/-	9	96/6	6	50/-

Finally the "Produce Market's Review" says the first lots of new crop East India and Mysore Coffee were sold in public auction to-day, and good prices were paid. Costa Ricas are finding a ready sale at the present moment, and there is generally a good demand for all the finer grades.

The details of Costa Rica coffee offered up to Easter are significant:—

	1920.	1921.
London cleaned Bags	222	9,264
Foreign cleaned Bags	4,414	25,553
Total Bags ...	4,636	34,817

The Lady Ampthill Nurses Institute

AND THE

South Indian Nursing Association.

These two Associations have been amalgamated and registered under the Indian Companies Act with the object of providing Nurses for attendance on patients in their own Homes, and Nursing Homes in Southern India. At present there are Institutes for Nurses and Nursing Homes at Madras and Ootacamund.

There are two classes of Members : (*a*) Firms and (*b*) Individuals. All members are liable to the extent of Rs. 15, if the Association is wound up during their membership, or within one year afterwards. Firms pay a minimum annual subscription of Rs. 25 in respect of every person connected with the firm, who is to enjoy the privileges conferred by the Association, and at the commencement of each year they will furnish a list of persons, who are to be included in their annual subscriptions. Individual members pay a minimum subscription of Rs. 25. The Committee have power at any time to increase the subscription to Rs. 30, and firm members may at any time increase the number of their nominees on payment of additional subscription, or substitute different nominees in place of any person leaving the service of the firm.

Instead of paying annual subscriptions a member may make a lump sum payment, on which interest, calculated at five per cent will be treated as though it were a payment account annual subscription, any excess of interest over and above the amount of the annual subscription due will belong to the Association.

All members, their wives and children are entitled to the benefits and advantages of the Nursing Homes, and Nurses on payment of fees, from time to time prescribed by the Committee, such fees being at a lower rate than those payable by non-members. The nominees of firm members being entitled to the same privileges as members, with the exception of the right to vote.

The U. P. A. S. I. will give as its nominees, the names of all those planters who were planting in Southern India, and who were members or employees of members of a District Association affiliated to the U. P. A. S. I. at the time they joined up for service. Of these there are either 99 or 100.

The business and affairs of the Association will be managed by a Committee consisting of :—The President, The Surgeon-General, and one representative of the Chamber of Commerce, the Imperial Bank of India, the Madras and Southern Mahratta Railway, the South Indian Railway, the Madras Trades Association, two representatives of the U. P. A. S. I., and not less than six or more than twelve members to be elected at General Meetings.

H. WADDINGTON,
Secretary.

14th April, 1921.

RUBBER TRADE ASSOCIATION OF LONDON.

Monthly Statistics.

MARCH, 1921.

Movements of all kinds of Rubber to and from the United Kingdom as per BOARD OF TRADE RETURNS.

IMPORTS.

From	February.			2 Months ended Feb.		
	1921	1920	1913	1921	1920	1913
Straits Settlements and F. M. S. ...	4,168	6,165	1,834	11,294	9,505	3,640
Ceylon and British India ...	2,192	2 379	647	4,058	5,252	1,250
Dutch East Indies, &c. ...	1,338	929	70	2,679	1,758	159
Brazil and Peru ...	197	2	1,909	510	428	3,923
Other Countries ...	113	171	1,841	238	392	3,320
Total Tons ...	8,008	9,646	6,301	18,779	17,335	12,292

EXPORTS.

To	February.			2 Months ended Feb.		
	1921.	1920.	1913.	1921.	1920.	1913.
United States of America ...	134	3,398	1,182	312	9,023	2,627
Canada ...	...	285	47	11	934	50
France ...	223	804	326	467	1,858	708
Belgium ...	70	321	146	184	537	296
Italy ...	45	250	14	205	386	42
Spain ...	15	3	9	22	17	15
Germany, Austria, Hungary ...	792	101	944	1,198	354	1,769
Russia ...	...	15	606	...	19	1,273
Sweden, Norway and Denmark ...	145	90	32	306	148	103
Other Countries in Europe ...	261	38	115	344	121	218
Other Extra European Countries ...	7	62	67	19	169	91
Total Tons ...	1,692	5,367	3,488	3,068	13,566	7,192

LANDINGS, DELIVERIES and STOCKS in London and Liverpool as returned by the Warehouses and Wharves during the month of Feb.

		Landed for Feb.	Delivered. for Feb.	Stocks 28th Feb. 1921.	1920.	1919.
LONDON ...	Plantation ..	5,654	2,785	59,034	19,606	14,652
	Other Grades ...	7	10	405	523	423
LIVERPOOL...	Plantation ...	618†	120†	4,845†	1,480†	1,900†
	Para & Peruvian.	410	261	1,052	110	1,100
	Other Grades ...	...	...	456	377	599
Totals London & Liverpool ...		6 689	3,176	65,792	22,096	18,674

† Official Returns from the six recognised Public Warehouses.

* Estimated.

Movements of all kinds of Rubber, excluding Gutta, Balata and Guayule, to and from the U. S. A. AS PER RETURNS OF THE UNITED STATES DEPARTMENT OF COMMERCE.

	December. 1920.	1919.	1918.	12 Months ended Dec. 1920.	1919.	1918.
IMPORTS ...	10,786	24,751	6,485	252,921	239,259	145,517
EXPORTS ...	690	423	23	4,132	2,282	2,745

RECEIPTS AT PARA.

	January. 1921	1920	1919.	July/Jan. (Seven months.) 1920/1	1919/20.	1918/9
Rubber ..	2,027	2,620	2,235	10,827	16,280	12 923
Caucho ...	320	300	250	2,301	3 170	2,602
Total ..	2,347	2,920	2,485	13,128	19,450	15,525

Estimated for February.	Rubber ...	2,820
	Caucho ...	420
	Total...	3,240

ALTERNATE MONTHLY TAPPING.

The " Rubber Growers' Association Bulletin " published in November last an interesting account of some experiments that were being carried out by Mr. Girard, Director of Suzannah and Anloo Estates, dealing with the cultivation of Hevea in Cochin China. Among others we choose as of particular interest just now the experiments relating to tapping periods which the author considers have hitherto been of too great a frequency, and he aims at proving the advantages of moderate tapping through the improved quality of the latex. The percentage of dry rubber in latex from normal trees he says is 50%, and more when young or old trees are tapped for the first time. It can drop to 25% as the result of intensive tapping, and this weakening is proportionate to the severeness and frequency of the tapping. He attributes also most of the bark diseases to this state of exhaustion. He recommends trial of :—

(1) FORTNIGHTLY ALTERNATION. Two groups of trees for one tapper, one in tapping, one at rest, tapped alternatively 15 days consecutively.

(2) MONTHLY ALTERNATION. This has the advantage of allowing a rest on Sundays with an equal yield to the fortnightly system. This equality of crop in a lesser number of days—about 25 or 26 days in 60 as opposed to 30 in 60 is explained by the suppression of one resumption of tapping which causes a drop in the yield for a few days.

In the case of "Monthly alternation" trees are tapped every day, except Sundays, for a whole month and left to rest during a complete month. Just as in the case of "Fortnight" alternation the cooly looks after two groups of trees, but the use of the same tools for the two groups is made easier. Properly organised an economy may be made in the supervising staff in addition to the very important one-50% in the number of tappers.

If, in addition to the periodical rest allowed by alternation and other resting days due to rain, the trees are rested for one, two or three months during wintering tapping would be reduced to :—

(1) 105 days in the case of 3 months wintering rest and 13 wet days.

(2) 135 days if the wintering rest is only of one month and the same number of wet days.

And thus the very important question of bark renewal, according to Mr. Girard, appears to have been solved.

It is obvious that such a system would mean a considerable loss of crop during the first year of its application, even into the second year. The author claims that it is justifiable by the results, viz., increased vigour of the trees, maintenance of the rubber centent of latex, conservation of bark and cheapness of cost by the direct and indirect saving of labour. He also claims that the 2 years which would be necessary for the estate to reach production equal to the year before the system was introduced would automatically relieve the market and give time for the absorption of the surplus stocks now available. Another point claimed is the assurance gained by this method of monthly alternation of the "durability" of plantations as they would be kept in better fettle and so last longer.

The system would appear to be merely an elaboration of the experiments previously tried in the East of tapping daily, alternate daily, every three days, and so on, only Mr. Girard deals in months instead of days. We have no idea of his climate except from the allowance for resting on 13 wet mornings which is certainly higher than the average in South India. It would appear from this that the rainfall is spread over the year more equally, and if any experiment on these lines is tried in S. India consideration of the periodicity of rainfall would have to be taken. Here, as has so often been stated there is also the question of drought to be considered and the month of January previously considered a good tapping month has gradually become a poor yielding period owing to lack of rain in December and the New Year. We would like to see an experiment tried on the lines of Mr. Girard with the following alternation:—

(1) Rest the trees in January, February and March.

(2) Tap alternate daily for 2 months, April-May.

(3) Rest for three months, June, July and August.

(4) Tap alternate daily for four months, September, October, November and December.

Such careful nursing of the trees might lead in a year or two to restoration of our worn out areas since we do not suppose any one will deny that we are suffering in South India to-day from overtapping in the past. The only drawback at present is labour—what to do with it in the monsoon months of June, July and August. Mr. Girard of course employs it in tapping, but monsoon tapping in India is an evil thing to our mind which sooner or later will be done away with. Other work will have to be found for the tappers, and it may be that the economy in labour made by the system will permit more money being spent on the fight against secondary leaf fall, a job which the tappers might very well be put on to in the monsoon months.

This will raise adverse criticism no doubt which will be all to the good as ventilating one more important point in the science and practice of Estate Management, but that need not prevent us from following closely the final notes which Mr. Girard communicates to the *Bulletin* in the February issue. He says:

The results which regularly reached us from our trials of alternate monthly tapping, showed a constant increase in yield which became accentuated from month to month.

The group of 134 hectares has exceeded by 90 per cent. in November, 1920, the production of the corresponding month in 1919.

This increase, which went from four for November, 1919, to seven and eight for November, 1920, in both cases with alternate monthly tapping and a regular rest of one day a week for the whole staff, is incontestibly due in great measure to the increased vigour of the trees, which, thanks to the sufficiently long period of rest, were enabled to reconstitute their reserves of latex in quantity and quality.

The other contributory cause may be attributed to the difference in height of the excised bark. This difference in production between tapping on bark, high or low, and in favour of the latter, is so much the more marked as the tapping is nearer to the soil and the roots.

In comparing the production of November, 1920, with that obtained in the same month of 1918, but from the daily tapping of all the trees without any stoppage, the increase in output still appreciably exceeds 25 per cent.

In a word, the total production from these 134 hectares in 1920 is approximately equal to the extent of about 5 or 6 per cent., to the total output of 1918 from this same lot with daily tapping of all the trees without any stoppage. In 1921, so far as one can judge from the production of the last months of 1920, we shall sensibly exceed on this lot the greatest production obtained during the period of daily tapping.

(*To be continued.*)

NOTES AND NEWS.

Ceylon Tea.

The following figures show the particulars of Ceylon Tea exported by rail *via* Talaimannar to Stations in Southern India :—

	lbs.
Ayyampet	1,420
Madras	80
Trichur	1,005
Tinnevelly	72
Cannanore	4,045
Badagara	3,440
Total	10,062

These figures are taken from the "Ceylon Chamber of Commerce" Weekly Price Current, dated 21st March, 1921.

International Rubber Exhibition, 1921.

The Rubber Growers' Association issues a circular as follows :

COMPETITION No. 1.

Owing to reduction of output, some Companies are not marketing scrap grades and, in these circumstances, the Committee have decided that a consignment may consist of *two* grades instead of three grades (75 per cent. No. 1 Sheet, and or Crepe and 25 per cent. No. 2 Grade, or Compo Crepe, other than scrap) provided the entry is accompanied by a certificate to the effect that Scrap Grades are not being manufactured, and that the consignment fairly represents the present grades turned out by the Estate.

NEW COMPETITION (No. 1A).

FOR RUBBER PRODUCED IN MALAYA AND CEYLON, SOLD LOCALLY IN SINGAPORE AND COLOMBO.

Under Competition No. 1, samples entered have to be wharfdrawn in London. The Committee have decided to open a Competition (No. 1A.) for rubber produced in Malaya and Ceylon, and sold in Singapore and Colombo.

The conditions will be identical with those of Competition No. 1 (as amended) except that samples forwarded to the Awards Committee must be accompanied by a certificate similar to that required for samples drawn in London, such certificate to be signed on behalf of responsible Godown approved by Local Chamber of Commerce.

Awards will be given for each country according to the number of entries received, and will consist of the Association's Gold, Silver, or Bronze Medals and Prizes.

Entries, samples and certificates will be accepted up to and including 25th May, 1921.

The Markets.

Reports in mail week show a general decline in the rubber market, but Tea appears to have gone with a brisker tone and prices were generally maintained with small advances. Pepper and Cinchona were both very quiet, the latter meeting with little or no demand.

The Mercantile Bank of India.

The following telegram has been received from the London Office of this Bank :—

"Final Dividend A and B shares 8% making 16% for the past year less income tax, and 8% less income tax on C shares for six months, July/December.

		£.
Carry forward	...	1,27,638
Carry to Reserve	...	50,000."

A Good Bag.

Mr. R. C. Morris writes to "Madras Mail".—

"What I think is a record for these days in South India has just been accomplished by Mr. A. S. Varney. In seventeen days he bagged 3 panthers, 1 tiger, 1 bear, 2 pig, 2 solitary bull bison, and 2 stage sambur in one locality. If it had not been for two jungle fires, Mr. A. S. Varney would probably have added another tiger, a bear and a sambur to his bag, as these three had been marked down and were driven off by the fire before we could get to them."

The South Indian Nursing Association.

Mr. Waddington publishes this week a note on the amalgamation of the Lady Ampthill Nurses' Institute and the S. I. Nursing Association, which we commend to the careful consideration of all planters. The payment of a lump sum of Rs. 500, the interest on which at 5% would cover the annual subscription seems to us worthy of consideration, and it will be seen that the man who joined up from the planting districts for service in the war will be nominated as members by the U. P. A. S. I.

Obituary.

The death has occurred from cerebral malaria, on April 10th at Mercara, Coorg, after two days illness, of Harry Reginald Salusbury Trelawney, youngest son of the late J. S. Trelawney of Peremboo Colly, Coorg, in his 28th year.

LETTERS TO THE EDITOR.

[*The Planters' Chronicle is not responsible for the opinions of its Correspondents.*]

Coffee Prices.

Dear Sir,—In your issue of 2nd instant, Mr. C. H. Godfrey waxes wroth over your use of the word "exhorbitant," and you repeat it in your editorial note. May I ask in what language this word is found? "Exorbitant" (*ex* out of, and *orbita* a track or *orbis* a circle) I know, but where does the *h* come from? I admit it is a great improvement when you are blowing off steam, for you can put as much emphasis into *hor* as an excited Frenchman does into his *sacrrrrrre*, whereas *or* must come mildly from even the most irate lips. Try it for yourself, and you will see what I am driving at.

Yours faithfully,

DUFFER.

[Note by Editor, *P. C.*—We did not use the word "Exhorbitant" at all—as our correspondent will see if he looks up the paragraph on page 185 in the article which has aroused Mr. Godfrey's wroth. The repetition of Mr. Godfrey's spelling of the word in our editorial note to his letter was of course intentional, hence the inverted commas.]

Coffee Prices.

Dear Sir,—In my letter as it appears in your issue of 2nd inst. there is a "Printers Error" which requires amending :—

"Their *ways* (sic.) originated"—as written—should have been "Their *woes* originated."

As for your "note" on same, I trust its "explanation" is more satisfactory to others than to me : I may be peculiar, but I regard an "Exhorbitant" price as an "unjustifiable" price; therefore, to suggest or give any publicity or possible foundation (and that moreover with so absurd a basis as you now quote!) for an idea that *we producers* were either expecting or hoping for such, seems a very grave and reprehensible slur on either our intelligence or our morality.

Yours faithfully,

C. H. GODFREY.

Aldur, Kadur District,
11th April, 1921.

[Frankly we do not understand Mr. Godfrey's attitude. Since he apparently reads his *Chronicle* he can hardly have missed the article on Coffee Prices in our issue of March 5th. It was of the information contained therein that we were writing when we mentioned the "talk of exorbitant prices". For the meaning of "Exorbitant" we refer him to "Duffer"—Ed. P. C.]

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" Coffee.

(BY CABLE.)

LONDON, DATED 15TH APRIL, 1921.

108s. per cwt. Market Firm.

H. E. THE GOVERNOR IN PARTIBUS.

The recent visit of H. E. the Governor and Lady Willingdon to Salem has attracted considerable attention in the Press, owing to the happy occurrence of an opportunity for the crowd to show their loyalty to the British Raj, much to the discomfiture of an agitated agitator, who might perhaps have weaned the people from their allegiance had his non-co-operation armour been of sufficient strength to withstand the deadly arrows of Lord and Lady Willingdon's popularity. It would however be contrary to the long established policy of the Chronicle (to eschew politics) if we were to wander into the strange territory of political turmoil, and we much prefer to stick to our own jungles, where Their Excellencies have joined us on more than one occasion, and where again—in the Shevaroys this time they have experienced the blissful joys of a planters' welcome.

Leaving Salem Market Station at 7-30 a. m., on the 10th instant, Their Excellencies motored to Yercaud, arriving at the Victoria Rooms at 9-30 a.m. Arches of welcome had been erected along the road from Belvedera on the Cart Ghaut right up to the rooms, and Yercaud itself was a gay spectacle under its mass of flags and bunting. Crowds of Mullalies had gathered along the road, it being Shandy day, people had come in early from distant parts of the hills, and gave Their Excellencies a warm welcome.

At the Victoria Rooms, Mr. Macqueen, I. C. S., Collector of Salem, who had accompanied the distinguished visitors, introduced Mr. R. F. Carley, Chairman of the Yercaud Union, and Mr. and Mrs. H. S. Dickins, who proceeded to the stage with Their Excellencies, and presented in turn all the planters and most of the residents. Introductions over, the company to the number of about 90 sat down to breakfast, the staff arriving when the meal was half over owing to their Cars finding the Ghaut a rather stiff problem. Luckily Their Excellencies changed Cars on the journey up, and so made better time.

After breakfast, the Honorary Secretary of the Shevaroy Planters' Association (Mr. H. S. Dickins) read a short address thanking Their Excellencies for their visit. He also said that the Madras Government had been very good to the planters in the past, and he hoped that they would continue to take the same interest in the future. This visit of Their Excellencies, he said, again proved Lord and Lady Willingdon's keen interest in the planting community, and the Association could only regret that the visit to the Shevaroys was so short a one. They were glad, however, that the opportunity had been afforded them of according Their Excellencies a planters' welcome.

His Excellency in reply said that he had always had the interests of the planting community at heart, and he would do all he could to meet their requirements, when these were brought to his notice. Of course, since the reforms, the form of Government was not same as it was before, but he would assure the members of the planting community one and all that their claims would find in him a ready champion. It was only after coming to this Presidency that he realised there were so many Europeans engaged in planting in this country.

Their Excellencies then visited various institutions in Yercaud, including Mr. Wentworth, Robinson's Phœnix Orchard, and Mr. Noel Hight drove them round the Pentland Circular Road, a distance of 22 miles, in his Car, while Mr. H. S. Dickins pointed out the various places of interest along this road which passes through the main planting districts on these hills, Green Hills, Moganad and Nagalur. Passing through the Shandy which was in full swing the party reached the D. P. W. Resthouse at 2 p. m. from whence, after light refreshments, Their Excellencies proceeded to Salem after expressing their opinion that the stay was all too short.

We have been asked to express the thanks of the Association to Mrs. F. D. Short, ably assisted by Mesdames C. G. Lechler, M. Cayley, S. M. Hight, V. L Travers Drapes, C. Dickins and H. Dickins for the breakfast provided, and for the pains they took in decorating the Victoria Rooms. The very welcome blossom showers made their appearance two hours after Their Excellencies' departure, and were followed by a fall of 3 inches on the 12th with the result that a splendid coffee blossom is out to-day all over the hills. This happy coincidence will help, if such were needed, to retain in the memory of those present the pleasant associations connected with this visit.

We have no difficulty in reading a deep meaning in these visits of Lord and Lady Willingdon to the planting districts of S. India. When we have finished with the amenities of social intercourse, the Schools and Hospitals have been visited, the duty speeches have been spoken and the Captains and the Kings have departed, there remains in our minds something which has been impressed there almost imperceptibly, and which we find good. It would indeed be an almost impossible, task to define that impression. It is something more than the platitudes we constantly hear of Lord Willingdon's continued interest in the planting community, it is something far beyond the pleasurable planters' welcome, and it is something more than the material benefit which we sometimes hope may accrue when heads of Government step down and see us as we really are. It is probably, though we admit our inability properly to define it, a feeling that with Lord Willingdon and his gracious Consort we are, on terms, not perhaps of intimacy, but of sympathy. His Excellency, withal that he is a man's man, if he will permit us to say so, is decidedly what the Italians would call *simpatico*, a word which we could very well do with in the English language, which can only approach its meaning with the wholly inadequate "sympathetic." He has in a large measure the faculty that enables a person to enter into, and in part share another's feelings. It is a rare touch, though greatly to be desired, and when it is found as in this instance in the head of a Government, makes for a cordial relationship which will stand the ravages of time and changing opinions such as no touch of statesmanship of political strategy, however much inspired, would do.

Lord Willingdon, in his speech at Yercaud, alluded to the change of Government in this country, and to his desire to champion the cause of the planting industry. We agree with Mr. Dickins that the Madras Government have not been unmindful of our interests in the past, and we feel sure that the change which has taken place will not disadvantageously affect us. The Government of the country is in the hands of a body of men of moderate opinions, who may be relied upon to know what is good and what is not in the best interests of the Madras Presidency. We confidently believe that if they could sometimes visit the planting districts and see for themselves, as His Excellency has done, exactly what is going on in the planting world of South India, they would realise that in the planting industry the country possesses a most valuable asset, one that should receive every consideration at their hands if it is to continue to form, as it undoubtedly now does, a stable source of prosperity. We put it to His Excellency, with all due deference, that a suggestion from him that some of his Ministers should go out and see for themselves the country they are now called upon to govern, if acted upon, would enable them to appreciate some of our problems. To the average European in Madras, the Anamallais, for instance, is unknown territory, the most vague ideas of its position and of the work the planters are carrying on there are prevalent among the few who have ever heard of it at all, while to the average Madras Indian, it is simply a place on the map where wild beasts and fever vie with each other to keep man out. It is time these impressions were removed. Even with His Excellency the Governor, we believe the visits paid to the planting districts have completely altered his preconceived notions of what they were, and now that Lord Willingdon knows that the planter is not a "wild man of Borneo," or some such freak fresh from Barnum and Bailey, let us hope his august example will be followed by the heads of Government Departments whose work brings them into contact with planters, so that the sympathy of past Governments may be continued, and indeed expanded in the present and future cabinets.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

COIMBATORE,
20th April, 1921

SECRETARY'S REPORT No. 15.

1. SECRETARY.—Mr. Waddington handed over charge to the Assistant Secretary, on Friday, the 15th instant, and left for Colombo the following day.

2. ROADS.—The Collector of Salem has asked what contribution towards the construction of the Vaniyar-Hunjavadi Road, Yercaud, the Association would be willing to make if the work was undertaken by Government. This has been communicated to the Honorary Secretary, Shevaroy Planters' Association for their decision.

3. FINANCIAL AID TO RUBBER.—The Executive Committee of the Local Branch of the R. G. A. have decided not to take any further steps in this matter for the present.

4. THE PLANTING COMMUNITY.—From figures just compiled, the following appears to have been the strength of the *European* Planting Community as at 31st March, 1921:—

RESIDENT IN S. INDIA.

District.	Planters.	Wives.	Children.	Other Dependents.	Total.
Anamalais ...	55	21	19	1	96
Bababudins ...	19	4	2	...	25
Central Travancore ...	40	16	9	2	67
Coorg ...	67	31	18	6	122
Kanen Devans ...	79	30	26	3	138
Mundakayam ...	33	7	4	...	44
Nilgiris ...	60	31	33	...	124
Nilgiri-Wynnad ...	28	14	12	1	55
Mysore ...	59	22	13	2	96
Shevaroys ...	26	17	18	11	72
South Travancore ...	41	10	7	1	59
West Coast ...	41	11	3	2	57
Wynaad ...	36	14	11	1	62
U. P. A. S. I. Staff ...	11	4	3	...	18
Total...	595	232	178	30	1,035

If to these are added the staff of Messrs. Barber & Pascoe and that portion of the staff of Messrs. Harrisons & Crosfield practically entirely employed on planting affairs, the total number of Europeans, resident in S. India, dependent on planting comes to:—

Men	620
Wives	243
Children	187
Other dependents... ...	30
Total...	1,080

(Signed) C. H. BROCK,
Acting Secretary.

BABABUDIN PLANTERS' ASSOCIATION.

PROCEEDINGS OF A QUARTERLY MEETING OF THE BABABUDIN PLANTERS' ASSOCIATION, HELD AT SANTAVERI ON WEDNESDAY THE 6TH APRIL, 1921.

Present.—Messrs. S. H. Dennis (President), Sam J. Wilson, F. D. Meppen, W. H. F. Lincoln, H. Kerr, W. R. Thomson, A. C. W. Denne, E. H. Thompson, N. G. B. Kirwan, F. Hugonin, C. Sylk, (Honorary Secretary).

Notice calling the meeting was read, and the minutes of the last meeting were confirmed.

LABOUR RATES.—The resolution passed at the combined meeting of the three associations held at Chikmagalur on the 6th February, 1921 was put to the meeting. and it was resolved that the Bababudin Planters' Association are in favour of adhering to the rates of 6 annas per man, and 4 annas per woman.—Carried.

INTERVIEW WITH TRAFFIC MANAGER.—Mr. Kerr gave details of his interview with the Traffic Manager. The meeting agreed to the Association running the matter of a shed at Birur Station, but only the Members interested in the subject would be liable for the necessary expenses incurred.

The subscribers guaranteed the amounts specified in the estimates. A most cordial vote of thanks to Mr. Kerr for all he has done in the matter, was passed.

ROADS.—It was decided that reminders be sent to the Deputy Commissioner and Conservator of Forests—Kadur Districts—asking what further information can be given on the subject.

SANDERSON MEMORIAL WARD.—Resolved that the Bababudin Planters' Association agree to contribute one-third of the expenses estimated to cost about Rs. 360 towards the refurnishing of the ward.

DISTRICT MEDICAL OFFICER.—Resolved that the Senior Surgeon to the Government of Mysore be asked to allow the present acting officer to remain as District Medical Officer, owing to his abilities, and the general satisfaction he has given in the District.

BREACH OF CONTRACT WARRANTS.—Read letter from the Superintendent, U. P. A. S. I., Mysore. Proposed by Mr. A. C. W. Denne, and seconded by Mr. W. R. Thomson :—

> "That the Chief Court be asked to recognise the Superintendent at Mysore, U. P. A. S. I. Labour Department, as competent to serve warrants under section 77, Nos. 1 & 2, Mysore Code of Criminal Procedure."

ELECTION OF HONORARY SECRETARY.—Mr. H. Kerr was elected Honorary Secretary.

The meeting terminated with a vote of thanks to Mr. Denne for the use of his Bungalow and hospitality.

(Signed) C. SYLK,
Honorary Secretary.

NORTH MYSORE PLANTERS' ASSOCIATION.

Proceedings of the Annual General Meeting, held at Balehonnur. on Monday, the 11th April, 1921.

PRESENT.—Messrs. C. H. Browne (Chairman), E. L. Poyser, R. G. Foster, Capt. H. Browne, F. W. Hight, C. S. Crawford, S. R. Frend, M. A. de Weck, and W. H. Reed (Hony. Secretary.)

Proceedings of the last General Meeting were read and confirmed.

PRESIDENT'S SPEECH. Gentlemen,—In such a large district as this, with Coffee growing under such vastly different conditions in respect of climate and elevation, it is almost impossible to have a season when climatic conditions are satisfactory to all Estates. On the whole the past year has been a good one, and crops quite up to the average.

Compared with last year the price of Coffee shows a great falling off, and the outlook is not too bright. The market is not likely to improve so long as trade with Central Europe, which took so much of our produce before the War, is restricted.

While the markets for our produce are falling, Estate expenditure under all heads is going up by leaps and bounds. In the past the Coffee planter has been accustomed to plead poverty when asked to put his hand in his pocket, if half he said about his poverty was true, with an increase in working expenses of 30 to 40 per cent. all round, and his produce back at pre-war prices, the outlook is far from rosy.

At the beginning of crop there was a great shortage of carts, and it looked at one time as if crops would not be got away, eventually carts were ample, but at rates about 50% over last year's.

While talking of carts, I would urge on you the necessity of examining and weighing every bag of manure brought from the Coast as pilfering on the road is largely practised, and will continue on those Estates where cartmen know the bags will not be weighed. The cost of manures have reached a point where many Estates will have to reduce their orders, and certainly cannot afford to buy fertilisers to manure the sugarcane in South Canara.

A good deal of dissatisfaction exists regarding the working of the South Canara Labour Agency. A well attended meeting of the three Mysore Associations was held in Chickmagalur last February, at which the South Canara Labour Superintendent was present, and we were glad to be able to talk matters over with him. I think, perhaps, it was a pity one of the Headquarter Magnates did not attend.

We had great pleasure in welcoming the Dewan on his long tour through the Kadur District, and are grateful for the courteous way he arranged that all should have an opportunity of interviewing him personally, I trust it is not the last time we shall have the pleasure of seeing him in this District before his term of office expires.

I am afraid we are going to lose our Secretary, who has carried on the work for 7½ years, notwithstanding his protestations that it was someone else's turn, however he is going Home and, thanking him for all he has done for the Association, I am sure I am expressing the desire of all present in wishing him and all his family a very enjoyable holiday, and that he will return like a giant refreshed and be roped in for a further period of 7 years.

HONORARY SECRETARY'S REPORT & ACCOUNTS.—Gentlemen,—The number of Estates on the Register is 40 representing 8,073 acres, of which 125 are under Tea, 280 Rubber, and 7,668 Coffee. Owing to two Estates changing hands we have lost 500 acres, but this is counterbalanced by three other Estates joining this year with a total acreage of 500 acres. Subscriptions have come in very late this year, and there is still a sum of Rs. 1,147-6-0 outstanding.

The revenue for the past year has been from subscriptions Rs. 9,075-2-0 Interest on Fixed Deposit, War Bonds and Current Account Rs. 189-11-0, and a Cash Balance of Rs. 1,901-5-0 brought forward from last year. The total funds to the credit of the Association are Rs. 2,000 on Fixed Deposit, and a Cash Balance of Rs. 2,312-10-1.

We had Rs. 2,000 invested in 1920 bearer bonds, and when this fell due it was placed on Fixed Deposit with the National Bank. A further sum of Rs. 2,000 was on Fixed Deposit, and fell due in March, 1921. This had to be utilised to pay our subscription due to the U. P. A. S. I., which was considerably in arrears.

I am glad to be able to report that financially the Association is in a very good position. When the outstanding subscriptions are in, we shall have a sum of Rs. 5,460 to our credit.

In laying the accounts before you for audit and inspection, I beg to submit my resignation of the Honorary Secretaryship. During the time I have been Honorary Secretary, which is now 7 years and 7 months, the Association has seen many changes, but things are more or less settled now, and I think my successor will find no difficulty in taking up the duties at the present juncture.

ELECTION OF NEW MEMBER.—Mr. M. A. de Weck, proposed by Mr. C. H. Browne, and seconded by Mr. R. G. Foster, was elected a member.

ELECTION OF OFFICE-BEARERS.—Mr. C. H. Godfrey, Chairman; Mr. M. A. de Weck, Honorary Secretary.

MEMBERS OF COMMITTEE.—The following gentlemen were elected:—Messrs. C. H. Godfrey, M. A. de Weck, Capt. H. Browne, and G. W. Fowke.

ELECTION OF GENERAL COMMITTEE OF THE UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.—Mr. C. H. Godfrey and Mr. E. L. Poyser.

DELEGATES TO ANNUAL MEETING of the United Planters' Association of Southern India:—Messrs. C. H Godfrey and E. L. Poyser,

DELEGATE TO THE DASARA ASSEMBLY.—Capt. H. Browne.

SANDERSON WARD.—Read letter from Mr. C. H. Godfrey, the Association representative on the Sanderson Ward Committee asking for a donation of Rs. 125 towards additional furniture, etc.

RESOLVED that a donation of Rs. 125 be paid.

LABOUR RATES.—Resolved that the resolution passed on 18th October, 1920 be confirmed.

RULES OF NORTH MYSORE PLANTERS' ASSOCIATION.—A Sub-Committee of Messrs G. W. Fowke, C. P. Read, and E. L. Poyser were elected to revise the rules of the Association

ROADS AND COMMUNICATIONS.—Read letter from Messrs Saldanha & Sons complaining about the deplorable condition of the Magundy-Balehole-Basrikatte Road. Several members strongly endorsed all Messrs. Saldanha & Sons had written and referred to the inadequacy of the present Upkeek Allotment, Rs. 80 per mile, for a road of such importance which during the rains was practically closed to traffic.

RESOLVED.—" That the Honorory Secretary do write to the Executive Engineer pointing out the deplorable state of this road, and ask him to get the rate of upkeep increased, and that our Representative on the District Board be requested to press for an increased expenditure on this important road."

The Meeting closed with a vote of thanks to Mr. F. W. Hight for the use of his bungalow.

(Signed) M. A. DE WECK,
Honorary Secretary.

SOUTH MYSORE PLANTERS' ASSOCIATION.

PROCEEDINGS OF THE 57TH ANNUAL GENERAL MEETING, HELD AT THE TRAVELLERS' BUNGALOW, MUDIGERI ON APRIL 15TH, 1921.

PRESENT.—Messrs. W L Crawford, D S O (President). A Durham, R. G. Foster, C. H. Godfrey, F. M. Hamilton. P. Hunt, L P. Kent, C. Lake, H. M Northey. W. W. Prager, K. T. Sheshaiya, B A., B L, K. Thammiah, and A. L. Hill. O B E M. C (Honorary Secretary). Visitor—Mr. H Northey.

1 The Minutes of the last meeting were read and confirmed.

2. President's address:—

With your permission, Gentlemen, I will as briefly as possible touch on a few of the chief matters of interest to our industry during the past year.

RATES OF PAY —The raising of the rates of pay I hold to have been inevitable, that is, if we hope to retain the labour we have and recruit more for our requirements. I admit it places an additional and heavy burden on the industry, which has recently had to meet so many extra charges. It is optional for members to pay the higher rates: those who can get along without will be unwise to do so Personally I think if a working arrangement is arrived at with Writers and the Maistries, and the extra pay only given to those who work 20 days or more in a month I am certain they will find it a very great assistance in getting regular and more efficient work from their labour force. I know of several Estates, including Ossoor, where this system is in force to the mutual benefit of both employer and employee.

SEASON.—The past season on the whole has been a fairly satisfactory one, as regards yield; some places having done remarkably well. Prices, however, have been very much below those ruling last year. The prospect for the coming season is not quite so good as the past on a good number of Estates.

TRANSPORT —This was more plentiful during the past season than the previous one, and I am glad to notice signs that indicate that in the near future the cart-hire to the coast will be cheaper.

ROADS.—I am glad to say that the roads in this part of the Hassan District look as if they would receive some attention during the coming working months, as I notice quite a lot of material has been collected at the roadside. This is a new and hopeful sign, and we hope that the collection of material will be insisted on in the more out of the way roads, that do not at present receive enough supervision from those whose duty it is to look after them I am hopeful that in the near future we will see considerable improvement in our roads, and this will be all the sooner if only those responsible for the work will take the trouble to inspect oftener. Members of your Association have come to the aid of the P. W. D., and agreed to do the repair of about twenty miles of the District Board roads in the neighbourhood of their Estates.

AUXILIARY FORCE (India).—The Planters of Mysore have agreed to support the scheme, and are apparently waiting for Coorg, as it is proposed, in combination with Coorg, to start a Motor Machine Gun Company, and possibly a light Motor Patrol. Given the necessary enthusiasm, the proposed unit should be a success.

EXCHANGE.—This is a very controversial subject to touch on. We can never expect the official to see eye to eye with the producer, as their interests are by no means identical with ours, and whatever may be said for, or against the attempt to fix the pound at Rs. 10, the fact remains that we and all exporters have been hit very badly indeed by the vagaries of the exchange during the past twelve months, and many of us think, seeing the paramount importance of the Indian Export Trade to the country, the Government were ill advised in not leaving well alone, *i e.*, left the value of the pound sterling at Rs. 15, at which rate it had previously been fixed, and during that time the value of the rupee had varied but little.

NEW TAXATION :—The Government of Mysore, as you all know, have recently introduced an Income Tax, and in doing so they have only imposed a tax that has long existed in British India. Everyone dislikes paying taxes, but we are aware that there are at times special reasons for the imposition of new taxes, and we must be prepared to pay our share as we will benefit thereby in some measure, but to pay taxes and derive little or no benefit is a legitimate cause of discontent

Whilst on this subject I cannot refrain from alluding to the imposition of the new and heavy customs duties by the Imperial Government. I doubt not you read with surprise the cynical observation of the Finance Minister, who is reported to have said :—"These duties as raised will still be substantially lower than the duties raised in the United Kingdom." I confess I am amazed at the mentality of a Minister who for a moment thinks India is in any way comparable to the United Kingdom in its ability to pay Taxation or Customs Duty. He seems to have forgotten that the United Kingdom has the reputation of being the heaviest taxed country in the world, and also one of the richest. It would be interesting to know if any of the duty levied on goods shipped for and coming into Mysore from overseas will be paid into the coffers of the State. It seems only reasonable, whatever may have been the custom in the past, that a share of these duties levied on stuff coming into Mysore should go to that State, or it should be made up in some other way, as Mysore, unlike most Indian States, pays a large annual subsidy to the paramount power.

In conclusion, gentlemen, I must again refer to the great loss this Association sustained by the untimely death of our late Hony. Secy. Mr.

C. J. Hayward. It is proposed to put up a memorial tablet, or in some other way perpetuate his memory, and I feel sure you will all support the scheme

We are all very much indebted to Mr. T. Anderson, who was acting Hon. Sec. when Mr. Hayward died, and to Capt. A. L. Hill who took over the duties of secretary, and has carried them out most efficiently. I am personally greatly indebted to him for all the assistance he has so readily given me.

3. Honorary Secretary's report.—

Gentlemen, I beg to submit a report for the year ending 31 3 21. This year has been marked, sadly enough, by the loss of your late Hon. Sec., Mr. Hayward. In succession to him Mr. T. Anderson acted as Hon. Sec until you did me the honour to elect me on 30-9-20.

Our membership now consists of 44 estates, with an acreage of 7,684, and one personal member, as against 44 estates with an acreage of 7,593, and no personal members at the beginning of the year. One estate of 100 acres has given notice of withdrawal, which will take effect from July, so our effective acreage may be taken as 7,584. The number of members on the books at the moment is 34, but an election is to take place to-day.

Five Meetings have been held during the year, and one Joint Meeting with the other two Mysore Associations.

Although our Articles and Memoranda of Association have been passed and signed, our Incorporation is yet to be accomplished, owing to some hitch in the procedure. The rules under Incorporation are to come up for discussion to-day.

The General Committee of the U P. A. S. I. was forced to raise the subscription to the U. P. A. S. I., by annas 2 per acre, for the last quarter of the year. It was decided to pay the increase out of the accumulated funds of the Association. Owing to some subscriptions remaining unpaid, we have not been able as yet to pay the U. P. A. S. I. the sum due. It seems almost certain that a similar increase will be necessary in the coming year.

The S. I. P. B. F. has been reorganised, and subscriptions will in future be collected by the U P. A. S I. Although this Association had the 3rd largest number of contributors to the Fund during the year, the response to the forms sent out by the Secretary to the U P. A. S. I. for subscriptions for the coming year, so far received, gives us but one life member and one ordinary member for the coming year.

Under the Reforms, a system of direct voting for the election of the Planting Member was started, and a roll of electors compiled by the U. P A. S. I. We have only 14 names on this roll. The election of Mr. J. A. Richardson was unopposed.

The proposed Co operative Stores appear to be moribund, and the prospect of any extension of the railway from Hassan is more remote than ever.

No further information *re* the Cemetery in Hassan, the proposed curing works at Chikmagalur, or the grant of land to ex-soldiers who were planters before the War, is available.

The Association decided to raise the maximum rates of pay for imported labour by 20 and 33⅓% for men and women, respectively, with effect from 1-12-20. The subject comes up for further discussion to-day. The result of our joint meeting with the other Mysore Associations was that the U. P. A. S. I. Executive Committee adopted our views as to the methods of private recruiting agencies, and took action in the matter.

The formation of an A. F. I. Unit in Coorg and Mysore has been unexpectedly held up by the inability of those nominated to the command to take up the work. As soon as a Commandant can be appointed that Unit will be formed.

This, gentlemen, completes my report, and I now beg to tender my resignation.

4. ACCOUNTS.—These were laid on the table and passed subject to audit. Later, Messrs L. P. Kent and C. Lake audited and found them correct. It was decided to keep the Reserve Fund, together with the interest falling due on 24-4-21 on Fixed Deposit for one year.

5 & 6. RULES AND INCORPORATION.—The question of the rules to be in force pending Incorporation, and the rules under Incorporation were discussed, and a sub-committee consisting of Messrs. W. L. Crawford, C. H. Godfrey, F. M. Hamilton, and C. Lake was appointed to re-examine the rules under Incorporation with particular reference to voting powers at meetings. The following resolution was passed for the guidance of the Sub-Committee:—"That Managers, duly authorised in writing by owners, should hold the vote for the acreages in their charge."

7. ELECTION OF MEMBERS.—Proposed by the President and seconded by the Hon. Secretary, the following were elected members of the Association:—Mr. J. D. Brewer, Capt. E. M. Nixon, and Mr. S. A. Smith.

8. LABOUR RATES OF PAY.—There was considerable discussion on this subject, and finally, it having been agreed beforehand that it could not be held binding on those members who had already made their labour agreements, the following resolution was passed:—"That the rate of commission to labour suppliers for the season 1921-22 shall be reduced from 10% to 7½%, if their labour is paid the increased rates of pay."

9. SANDERSON MEMORIAL WARD:—Mr. C. H. Godfrey reported that about Rs. 360 was needed to properly equip the Ward, and suggested that the three Mysore Associations should each contribute Rs 120 for the purpose. It was put from the Chair, and carried that this Association should make a contribution of Rs 120.

Mr. A. Durham was elected as Representative on the Governing Body of the Ward for 1921 22.

10. ROADS AND COMMUNICATIONS —The exceedingly bad state of the Belur Chickanahalli Road was reported to the Meeting, particularly the Naganhalli-Chikanahalli section The Hon. Sec was instructed to write to the Executive Engineer, Hassan Division, accordingly.

11. ELECTION OF THE EXECUTIVE FOR 1921-1922.—The results of the elections were as follows:—

President:—Mr. C. Lake.

Committee:—Messrs. C. H. Godfrey, W. L. Crawford, D.S.O., F. M. Hamilton, and A. Durham.

Honorary Secretary:—Mr. A. L. Hill.

12. ELECTION OF THE U. P. A. S. I. GENERAL COMMITTEE MEMBERS FOR 1921-1922.—The result of the election was as follows:—

Messrs. C. H. Godfrey and C. Lake.

13. U. P. A. S. I. EXPENDITURE.—Mr. F. M. Hamilton raised the question of economies to be effected in this in the matter of salaries. It was decided that the subject should be discussed, and delegates instructed, before the U. P. A. S. I. Annual General Meeting.

14. PROPOSED A. F. I. UNIT FOR COORG AND MYSORE.—A letter from the Colonel-Commandant, Bangalore Brigade area to the Mysore and Coorg Associations was read, stating that the gentlemen nominated to the command were unable to take up the work, asking that a fresh nomination might be made at once, and pointing out that, if no commandant could be found, the Unit would form a company of the Bangalore Battalion. An effort to induce the Mysore nominee, Col. W. L. Crawford, D. S. O., to reconsider his decision and take the command was unsuccessful, and no other name was forthcoming.

15. HAYWARD MEMORIAL:—Mr W. L Crawford proposed that the memory of the late Mr. C. J. Hayward, who was a friend of all and who had done so much for the Association, should be perpetuated by a tablet to be placed in his parish church in England. This was agreed to, and a subscription list was circulated.

16. PROPOSED U. P. A. S. I. BUYING AGENCY:—The outline of the scheme was read to the Meeting, and it was decided that, pending fuller information, the Association would provisionally support it.

With votes of thanks to the retiring President and the Honorary Secretary, the Meeting ended.

(Signed) C. LAKE,
President.

(Signed) A. L. HILL,
Honorary Secretary.

ALTERNATE MONTHLY TAPPING.

(Continued.)

To sum up, one can draw conclusions with certainty, seeing that the results of the trials made on this large parcel of land are confirmed month by month by all the divisions of our plantations, put successively under monthly alternation.

1. That it is possible to give a complete rest of one day a week to the whole staff without any other ill effects than a temporary lessening of production during the period of transition.

2. That the decrease in production which varies according to the state of the trees at the time they are put under alternation, can reach 80 per cent. the first months when compared with the separate months, and about 40 per cent. for the whole of the first year of alternation.

This reduction in output during the first year of alternation is compensated in great measure by the saving effected in labour and superintendence as an economy of at least 50 per cent. can be looked for in the gangs of labourers who have to attend to the trees that have gone sick owing to daily tapping.

Further, the economy in bark conservation, as a matter of fact is of much more interest when the price of rubber is low.

Likewise, this bark economy urged with reason in favour of alternate day tapping is absolutely certain with a monthly alternation which permits the tapper to always operate on fresh bark, except on the day of changing over, exactly the same as with daily tapping. This explains the ease with which we have been able in a few months, to adopt this method generally on our two plantations, which have a superficial area of nearly two thousand hectares.

We have benefitted in addition in the selection of our tapping coolies, as when disbanding half the force, we were able to keep the best amongst them, viz., those with the most skill as well as those of the best physical stamina.

3. That the lessening of production diminishes month by month, to become an increase before the end of the second year of alternation. Starting from that moment one benefits entirely and definitely from the economy in the labour force and one is assured a continual progress if the very great increase in the life of the plantations is taken into account.

It can be admitted in principle, that in adopting this simple method, so easy of application, on all plantations, the total decrease in production which would be about 80 per cent. for the first months, would reach a mean total of about 40 or 50 per cent. the first year, and from 15 to 20 per cent. the second year.

This reduction, it seems to us, would be sufficient to rapidly re-establish the situation, for the technical reasons which support it would influence buyers much more than an ordinary reduction momentarily imposed by the fall in prices in the first case, after the dismissal of the mediocre and bad tappers, and when the good effects obtained from resting the trees became apparent, there would no longer be any fear of a return to intensive cultivation, which on the contrary would always be possible under existing conditions owing to disagreement between various groups.

Perhaps it may be as well to discard after consideration as practically inapplicable, all solutions of restriction to be imposed by "Governments" whose role should be to render financial aid where possible and necessary. There is, however, one point which in our opinion could be regulated by the authorities in rubber-producing countries and that is to make a weekly rest obligatory, which would be difficult to enforce in any other way.

We are convinced that the method we recommend, of an absolute efficacy in the immediate and necessary decrease in production, which can attain 50 per cent. the first year of alternation of the production when the method was changed, is of the greatest simplicity in application and control. We are also persuaded that it enables one to avoid the mixing up, generally inefficient, of a third party in the details of cultivation.

Thus, whilst it is easy for any planter to intensify the tapping in depth, or even to limit it to the base of the tree, if he is forbidden to extend it we estimate that one could logically, with alternate tapping and a weekly rest, leave every liberty as to the extent of the cut All the control needed would be to seek the proof, easy to find, of a reduction of 50 per cent. in the number of tappers used alternately on each half of the plantation.

We would specially insist upon the facility of adaption of the tappers, whatever be the number, a facility so much the greater in that it is a question, in short. of daily tapping alternately made for one consecutive month upon each of the two groups in charge of one gang of labourers.

The grave labour crisis which has been threatening in certain districts would solely by this change of method be sensibly diminished, and the probable consequences of an advance in wages would be delayed.

Should these measures not prove sufficient, it would still be possible—and we already have interesting figures based on long experience—to give the charge of these groups to one gang of labourers, the trees being tapped in this case, one month in three, always with a general weekly rest.

Big yields from trees could thus, without fresh costs for extensions, be somewhat more retarded and held over until a period of large consumption with a consequently higher range of prices.

One would benefit besides by a fresh economy in labour.

The actual crisis which confronts producers would by these means be rapidly diminished, and one would avoid at the same time the grave menace which threatens manufacturers and consumers in the near future.

For it is beyond doubt to all those who have followed these questions closely enough that the Hevea uses itself up more rapidly than is generally supposed when it is tapped daily and intensively enough to justify, apparently at least, the cost of daily tapping.

It is equally noteworthy that the areas planted from 1913 to 1920 are far from corresponding to the large plantations created in 1906 to 1913 which are all in bearing.

Also, one cannot ignore the fact that the purchase price of the new plantations will be much above that of the old ones, and that this fact will influence extension to the extent of seriously limiting them; also that all the best seats near railways and water communication are already occupied. All these reasons which indicate that it is to the general interest to effect economies in Hevea plantations, are in addition to the immediate interest of producers to put the market right; they ought, it seems to us, to press forward on the perfectly safe road of alternation, which we repeat in conclusion, will permit of their insuring the future not only of their own enterprise, but also all industries that deal in rubber, and alleviate considerably after a brief delay, the difficulties now being experienced. This method would, we believe, very quickly come into general use, if your powerful and learned Association recommended it.

THE HEALTH OF THE WORLD.

Dr. Victor G. Heiser, the Director of the Eastern work of the Rockfeller Foundation International Health Board, is as has already been stated at present in Ceylon.

In an interview with a *Times of Ceylon* representative, Dr. Heiser stated that he was making an extended tour of the East to see the work that the Foundation was doing in co-operation with a good many Governments.

" The thing one hears most about," said Dr. Heiser, " is economic depression, and I am very glad to see that Ceylon is suffering very much less than a number of other places in which I have been. On the other hand, notwithstanding economic depression, other countries seem to be ready to go forward in health matters, feeling that these belong to the permanent establishment. For instance, Australia has just entered upon a new Ministry of Health. I have done a good deal of hookworm work in Australia, and they are now extending the campaign to their new territories, such as what was formerly German New Guinea. The new Ministry of Health is also undertaking another very progressive measure in establishing 12 new laboratories at strategic points throughout the mainland, and also one in the new territories. Modern public health work is more a matter of science than opinion, for most things can be proved in the laboratories."

" With regard to Ceylon, I have been delighted to find the keen interest which is shown on all sides. H. E. the Governor has graciously granted me a number of interviews, and I have had a number of talks with Sir Graeme Thomson, the Colonial Secretary, and both are keenly interested. They assured me that Ceylon is not only going to keep on with its hookworm work, but is going to extend its efforts in the direction of preventive medicine, and, as that is the attitude here, there is no question of our withdrawing in our attempt to co-operate, so long as the Ceylon Government is prepared to go forward."

"We had a most satisfactory meeting on Saturday morning with the Anchylostomiasis Committee, of which the Colonial Secretary is the Chairman, and it was decided at that meeting not to restrict the hookworm control measures, but actually to increase them."

"In my visit to Ceylon this time I have been more struck than ever before by the amount of relief work which is being done here. I refer to the great number of hospitals and dispensaries which there are throughout the Island. I am fairly familiar with the British Colonies, as well as the Colonies of other countries, and I cannot recall one in which so much medical relief work is done as here in Ceylon."

"I am, of course, very interested in preventive medicine, and your P. C. M. O., Dr. Rutherford, tells me that plans for extending preventive medicine work are going forward very rapidly. So that, instead of there being gloom in Ceylon, I find that everyone is optimistic."

"The Rockfeller Foundation is interested in a great many different phases of sanitation. For instance, our programme for the eradication of yellow fever throughout the world is going along very nicely. The disease has been completely wiped out in South America except at one point in Brazil, and the only other remaining point in America is Mexico, and with the advent of the new Government there, active measures are being taken. We hope that in the course of a few more years there will not be another case of yellow fever in the world, which means that one human ill will have been wiped off the slate."

" We are also greatly interested in Malaria. It is well known, of course, that malaria can be controlled anywhere so long as sufficient funds are available. We have been conducting practical field experiments for some years. For instance, in malarious conditions such as exist in the United States, we have demonstrated that malaria can be controlled for approximately 4s. *per capita* per year in the average community. We do not know what it can be done for in the tropics. We are now conducting field experiments in Porto Rico, Nicaragua and the Argentine."

" Is the campaign likely to be extended to Ceylon ? ", Dr. Heiser was asked.

" We shall be very glad to take the matter up with the Ceylon Government as soon as we feel that we have reached a point when it is no longer an experiment so far as a reasonable figure is concerned. Dr. Rutherford tells me that they are also undertaking studies here, and we hope that in a short time we may be able to evolve something which will be suitable for tropical conditions."

"The control of malaria is a very difficult thing. In some of the countries where very extensive work has been undertaken, it has eventually proved a failure and the money lost, so that before heavy expenditure is incurred, it is necessary to know what is possible under a given set of conditions. It has been very clearly demonstrated that a method which is successful, in, say, the Argentine, is not necessarily suitable for Ceylon or any other country."

"How do you think the anchylostomiasis campaign has progressed in Ceylon ?", our representative enquired.

"I am very gratified to see the large amount of progress which has been made. Out of approximately 600,000 estate labourers in the Island, over 300,000 have been treated. Practically all the estates have put in latrines. That is the crux of the whole problem. Unless soil pollution is stopped, it is useless to treat the disease. The second point of the problem is to educate the estate cooly to use them. In that we look to the help of the planting interests."

"Is there any prospect of the work on estates being resumed by the aid of a grant or loan from the International Health Board ?" our representative asked.

"We are mainly interested in demonstrating that a certain thing can be done. The system is now well understood, and some recent discoveries will probably make it possible for the work to be done more economically by the estates themselves."

" You are, of course aware that the work on estates has been stopped owing to the present financial situation ?"

" It has not been so completely stopped as one would think. I have visited a great many estates, and they are going forward themselves, and as they gradually induce their coolies to use the latrine the disease is going to disappear, even if they do nothing further."

Dr. Heiser is leaving Ceylon shortly on the " City of Baroda." First he goes to Egypt, and then to Palestine, on the invitation of Sir Herbert Samuel, the Governor. Palestine is starting a new Health Department, and Dr. Heiser will confer with them on their various problems.

THE TORTRIX TEA PEST.

LIME AS A TREATMENT.

Lime, as a treatment for tea tortrix, was brought to the notice of the Department of Agriculture in November last. An experiment was begun in December on an area of one acre in the Norwood section of the Dimbula District under the supervision of the Plant Pest Inspector, Central. This experiment was instituted to ascertain if any indication was forthcoming that experiment on a larger scale would lead to information of economic value. The experiment, however, was ruined by the heavy evening rains of that month, and it was necessary to postpone investigation until the weather became more favourable. Two areas of an acre each were treated in February and March, in Norwood and Maskeliya, respectively. Information as to the results of these experiments and the efficacy of lime as an eradicative of tortrix has been called for.

It would be premature to deduce anything from the results obtained up to date. Correct interpretation of results can only be made when data has been accumulated from a series of experiments conducted over a more considerable period than two months. The fact remains, however, that several planters who have treated their tortrix-infested tea with lime have succeeded in temporarily eradicating the pest, and as the treatment is a popular one, economical, easily and rapidly carried out, and in no way interrupts estate routine, it is a treatment that should receive definite and thorough investigation. There is some slight indication that the application of lime to tortrix-infested bushes aids the rapid propagation of the Polyhedral or Wilt disease of the tortrix. The method of application is simple. Good quality of slaked lime is merely broad casted on the affected bushes, care being taken—when egg masses are present—to cast the lime on the lower as well as the upper sides of the leaves. This precaution is necessary , because the newly hatched insects feed upon the lower sides of the matured leaves during the first eight days of their lives. The lime should be broadcasted in the early morning, when the bushes are wet with dew, mist or rain. The quantity necessary per application is from ¼ ton per acre upwards, and applications should be continued, if necessary. Application should never be made while it is raining, otherwise the lime when wet is difficult, if not impossible, to apply properly. If the application is well scattered over the leaves—the lime will remain on the bushes when they are dry, and even during moderate rains.

There is little doubt that under certain conditions the treatment is efficacious, but whether the necessary conditions are governed by climate, quality and quantity of lime, time of application, number of applications or the natural vitality of the brook are questions that can only be settled by a series of experiments.

Should this form of treatment, ultimately prove efficacious in all cases, no more practicable measures along the lines of estate routine could be advocated. With the object of interesting Estate Superintendents in these experiments, and with a view to encouraging further experiments to be made, the Estate Products Committee of the Board of Agriculture at its last meeting desired that details of the form of treatment now being experimented with should be made public. The Department of Agriculture is desirous of co-operating with any estate that desires to make trials with the treatment above outlined.

The Department, however, still adhere to the view that the key to the solution of the tortrix problem is the establishment of effective "flight breaks" as described in Bulletin No. 45.—*Communique.*

Department of Agriculture, Peradeniya, April 12th.

The Planters' Chronicle.

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Edwin Vincent, Managing Editor, Coimbatore.

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THE SOUTH INDIA PLANTERS' BENEVOLENT FUND.

The Proceedings of the West Coast Planters' Association which are published elsewhere in this issue, would seem to indicate that there is still some misunderstanding regarding the *modus operandi* of this fund, and it may be as well to clear up some of the doubtful points. At the same time we will again draw attention to the needs of this fund, a thing we have refrained from doing for some months past as we thought it perhaps impolitic to appeal for more subscriptions owing to the particularly depressing aspect of some of our industries and the general tightness of money everywhere. Mr. Walmesley's remark at the West Coast meeting, however, gives us a tip which we admit had escaped us; the very fact of times being so hard is all the more reason why we should ask for increased support to the fund, as calls on the fund's purse are likely to be more frequent than is usually the case.

There is no doubt that the previous rules of the fund were inadequate, and out-of-date, and that they were partially the cause of the waning interest shown up to 1918-19. The new rules revised up to December 1920, coming on top of a vigorous campaign by the Secretary, and in these columns, led to a greatly increased income, without which it would not have been possible to make the grants which have been made. These rules now cover most, if not all, of the points which have been raised from time to time and which were not covered in previous years, so that they may be considered to be fairly conclusive, based as they are on 12 years experience. There will always be, of course, some minor point cropping up, for instance that brought out at the West Coast meeting on the matter of collection. The rule (No. XI) reads :—

" All subscriptions shall be due on April 1st each year, and the Secretary shall collect same by means of the V. P. Post, charging an additional four annas to cover money-order commission."

Before this could be done it was necessary to get the permission of subscribers, as it is not legal to send by V. P. P. without instructions to do so. The Postal Regulations distinctly state that V. P. P's must only be sent in execution of a *bona fide* order received by the sender. It was for this reason that form B was drafted and made to read . . . . "I am willing . . . . should be collected in yearly instalments of Rs. . . . . by V. P. Post as allowed under Rule XI in April of each year." This form B will be found in the book of rules, a copy of which was sent to every planter whose address was known, and spare copies are available for anybody who wants them at U. P. A. S. I. Headquarters. Unfortunately these forms, as is so often the case, were almost completely ignored, so Honorary Secretaries were asked to forward a list of members who were willing to pay by V. P. each year. This brought in a few more names, but there are still a very large number missing, and Honorary Secretaries are therefore asked to give this matter their attention.

Another rule which was referred to is that concerning subscriptions from Associations. Rule VI (b), permits of any Estate (affiliated to the U. P. A. S. I.) subscribing as a member a minimum of Rs. 25 per annum,, and presumably Associations come under that rule and rule XIV, which reads " All subscriptions of less than the minimum laid down or received from persons not eligible for membership shall be treated as donations to the Fund." What benefits the Association or Estate derive is not stated, as the " Nominee" system has been dropped, and the rule regarding beneficiaries is quite clear on the point that ordinarily only members may benefit. From this it would seem that, although in the event of an association subscribing it might perhaps recommend for assistance a deserving case, it has no absolute right to such help unless the assistance is required for a person who has regularly subscribed. The rule in fact gives such bodies as firms associations, etc., an opportunity to be generous by becoming members.

Mr. C. E. M. Browne brought up the question of subscribers in arrears who wished now to pay the balance due without suffering any of the disabilities laid down in the rules. Ordinarily, a member of the S. I. P. B. F. should look upon his subscription in the same light as he does that to his club, where he knows that if it is not paid he will be posted as a defaulter. Thus rule XII says any member whose subscription is more than one year in arrears shall only be entitled to such benefit as is allowed under Rule XVII (Grants to dependents of Planters), and this restriction shall remain in force for 2 years after payment of such arrears. In the case of the planter who did not leave S. India during the war there is little excuse for relaxation of this rule, but we heartily recommend to the Executive Committee special consideration to those men whose subscriptions lapsed owing to their absence on service. These ex-service men should be allowed, as Mr. Browne suggests, to retain their full rights by simple payment of arrears, and those who wish to become life members should be permitted to do so on payment of the difference between the sum total of their pre-war subscription and Rs. 200. In at least one club we know of these ex-service men have been permitted to retain their membership without payment of the absentee subscriptions for the years during which they served the country, and we have no doubt the idea will be favourably received by the Executive Committee.

In his report No. 13, the Secretary, U. P. A. S. I. published a list of subscriptions received during the year ending March 31st, 1921*. A total of Rs. 4 545-14-0 was received ; and it must be remembered that this includes Rs. 1.250, donations from two District Planters' Associations. In the previous year Rs. 5,440 were received, without any unduly large donations, although a number of people responded to our appeal for patrons, so that really the comparison should be between Rs. 5,440 last year, and Rs. 3.300 this, a sad commentary on the charitable disposition of the average planter. The word "charitable," come to think of it, is a misnomer in this case. It is not "charity" to pay in a proportion of one's salary to an insurance fund, or provident institution, even though others may benefit from it ; because one never knows when one's own turn may come. For a modest sum of Rs. 10 per annum a member is assured that in the event of his death, or of his temporary or permanent incapacity through accident or sickness, he or his dependents will receive immediate help to tide them over the first shock of pecuniary loss. The fund is not meant to provide a permanent annual income for any one, and could not possibly do so with its small capital, but that it has been of immense service in providing timely help in a large number of deserving cases we challenge any one to deny. In 1920-1921, although only Rs. 4,545 were collected Rs. 6,300 were distributed in benefits. A state of affairs sufficiently alarming to warrant the immediate concern of all those who do not wish to see this fine institution disppear for lack of support.

Once again, we appeal to all planters, and particularly to Honorary Secretaries to push collections for the fund. What the Anamallais have done other Associations may do, the effort is not extraordinarily great, but the reward is extraordinarily pleasing.

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* "P. C." No : 14, 2-4-21. *q. v.*

WEST COAST PLANTERS ASSOCIATION.

Proceedings of the Annual General Meeting, held in Calicut, on Saturday the 16th instant, at 11 a. m.

PRESENT.—Mr. S. P. Eaton (Chairman), Messrs. H. Walmesley, E. H. Halliley, C. E. M. Browne, R. Turner, H. H. Tippetts, E. H. Collbrook, E. F. Thomas, I. C. S., (Collector of Malabar), and G. Bayzand (Honorary Secretary).

VISITOR.—Mr. S. H. Powell.

Notice calling the meeting was read; the minutes of the last meeting were taken as read, and confirmed. The Honorary Secretary read a telegram received from Mr. J. V. Shank expressing regret at his inability to attend the meeting, and wishing it all success.

CHAIRMAN'S SPEECH.

RUBBER MARKET.—I do not intend occupying much of your time in reviewing the events of the past year, but during the latter half the rubber world has passed through an anxious time, and so far has not entered smooth water. The price of the raw material has dropped from 2/10d. per pound to 11d., or, in other words, estates in Southern India, instead of working at a profit are in practically every case producing at a loss. This unfortunate state of affairs has, as we all know, come about through the enormous stocks held at home, which are now somewhere around 60,000 tons, besides the large stocks held by the manufacturers, and until this surplus can be greatly reduced the price of plantation rubber is not likely to improve to any appreciable extent.

RESTRICTION.—We are all assisting in this reduction, to however small a degree, by restricting our output by the 25% that the R. G. A. has recommended. Personally I think S. India should have had preferential treatment from the start, for reasons which I have already stated, and as the amount of rubber taken off the market by this curtailment in Southern India will be infinitesimal in comparison with the whole, it cannot in my opinion make the slightest difference to the market price. Restriction of the world's rubber supply is obviously a crying necessity, and my sole contention is and always has been that we in S. India should not be unfairly penalised. However, since the R. G. A. has decided otherwise all estates of this Association will I am sure continue to do their bit for the sake of co-operation and unity. It has been the sad lot of some estates belonging to the W. C. P. A. to either close down or cease tapping to a large extent, but we hope this will not be for long. I myself am very optimistic, and think that whilst the exchange keeps down to the present level of 1 4d. or less to the rupee, South India will be able to weather the storm. There is every need for rigid economy, none for "panicking."

TRADE.—There were hopeful signs of the resumption of trade with Russia, but that country seems to have broken loose again, and faith in the present Soviet Government appears to be wavering, but, when Germany, Austria and Italy find their feet and America stabilises her rubber market the trade should show signs of improvement. It is very pleasing to note that freights on the West Coast have dropped to 65 -, less the usual 10% rebate.

MONSOON.—The monsoon last year broke well up to time, but it was an excessively heavy one especially in July and August, which somewhat hampered tapping operations. The average rainfall has been about 20 inches above the normal, but I believe crops on the whole have been well up to the estimate.

DISEASE —No fresh diseases have appeared in rubber—not that we want any more, because we have quite sufficient already, but the cure for Brown Bast, our chief source of trouble, has not definitely been discovered. Although several methods have been tried, it will not be possible to know with what final result until trees have had time to make a fair renewal; but there is every hope that one of the many treatments may prove successful. Secondary leaf fall, or phytophtera Meadii, was bad all over S. India last year. We have a cure that has been proved effective—the cutting off of all fruits and die-backs, but this method is a very costly one, and will hardly be carried out by any estates whilst the present deflation of the market continues.

LABOUR.—On the whole, we have had a sufficiency of labour during the past season, partly, no doubt, due to restriction of estate expenditure; and our rates compare favourably with those of other Districts. It was a pity that other Districts found it necessary to raise their rates at a time of such stringency in both the tea and rubber markets. At present there are no signs of the influx of returning labour from Ceylon that was anticipated, which is a good thing in many ways. If any appreciable numbers were repatriated it would only lead to unemployment and crime, and with our doubtful friend Mr Gandhi preaching his N. C. O. movement, and the Khalifat upholders raising trouble throughout the land, the unemployed have nothing better to do than to listen to their fanatical vapourings. The results are sad for everyone concerned, more especially for the peaceful and contented villager and agriculturist whom we all know so well.

Gentlemen, future prospects are not too rosy, but they might be far worse, and I am confident that rubber will find its own again. The present depression is the inevitable aftermath of war. The large stocks that were held up through shortage of tonnage, etc., are now afloat on the market, and the present position might very well have been anticipated, but it is as well to note that although the share market has dropped heavily there has not been that mad rush of sellers that shows panic. Signs might be much less hopeful, and I trust that next year may see rubber bouncing with renewed vigour into the arena of good prices and prosperity.

Gentlemen, I thank you for having done me the honour of electing me as your chairman. I now place my resignation in your hands. Having such an excellent Honorary Secretary has made my work very easy, and I thank all members for their support and attendance at meetings.

HONORARY SECRETARY'S REPORT.

During the past year there were only three General Meetings held, owing to the absence of the late Honorary Secretary and Chairman, who were on home leave. One Meeting was held at Cochin, one at Mooply Valley, and one at Calicut, so really there was no excuse for any member not being present at at least one of them. All meetings were very well attended, especially in comparison with previous years, though we should still have liked to have seen some members present who never, or very rarely, put in an appearance.

When a thing of such importance as the present day crisis is before us, it is very interesting to have the opinions and suggestions of all members, and when, now-a-days, serious questions arise, it would obviate the necessity of explaining matters by post and receiving objections and criticisms of resolutions passed at our meetings. Members who neither attend nor send their proxies can hardly complain of lack of consideration.

The number of Companies belonging to the Association remains the same as last year, namely 18, though I have recently been notified that two now wish to resign. Our private membership has fallen to 9. The total acreage subscribing is 20,000, compared with 19,742 last year.

From the accounts which are on the table and from the Balance-Sheet which has been sent round, it will be seen that the expenditure on running the Association, exclusive of Delegates, was Rs. 473-2-3, as against Rs. 298-7-4 last year. The extra expense has been caused by the printing of the U. P. A. S. I. book of proceedings, (one of which was sent to each member), at a cost of Rs. 87-4-0, and the purchase of a typewriter costing Rs. 232-2-0.

Stationery shows a decrease of Rs. 90-1-6. There is an increase of Rs. 250 on the expenses of the two Delegates to the U. P. A. S. I. General Meeting at Bangalore, when Rs. 200 each was granted. The year before, one delegate only went, with a grant of Rs. 150.

We close the year with a balance of Rs. 2,080-2-6, or Rs. 604-5-7 more than at the end of March, 1920.

The accounts have kindly been audited by Mr. Browne, to whom our thanks are due. There are no outstanding debts except the subscription to the Inter-District Tennis Tournament of Rs.100, and I trust the Meeting will see fit to pass the accounts.

The subscription to the L. A. N. I. was discontinued in accordance with Minute 439.

Rs. 140 was sent to the S. I. P. B. Fund, being cash received during 1919-1920, and it is a matter of some concern that no subscriptions were received during 1920-1921, as funds are urgently required to meet deserving cases, but as this matter is now in hand, I hope the appeal will not go unanswered.

I now beg to tender my resignation.

The meeting decided to pass the accounts, and accorded a vote of thanks to Mr. Browne for auditing them.

ELECTION OF OFFICE-BEARERS FOR 1921-22.—Proposed by Mr. Eaton and seconded by Mr. Tippetts, that Mr. C. E. M. Browne be elected Chairman for the coming year. Mr. Browne replying, thanked the Meeting for proposing him as their Chairman, but regretted that he was unable to accept the post. Mr. Browne proposed and Mr. Walmesley seconded, that Mr. Eaton be again elected Chairman of the Association for the coming year.

Mr. Eaton proposed, and Mr. Halliley seconded, that Mr. Tippetts be elected Honorary Secretary to the Association for the coming year.

The following Office-Bearers were then elected by ballot:—

CHAIRMAN.—Mr. S. P. Eaton.

HONORARY SECRETARY.—Mr. H. H. Tippetts.

GENERAL COMMITTEE.—Mr. Eaton and Mr. Morrell.

COMMITTEE.—Messrs. Halliley, Lescher, Walmesley and Bayzand.

Mr Eaton thanked the Members of the Association for having again elected him Chairman. Mr. Tippetts also thanked the Members for having elected him Honorary Secretary, and expressed a hope that they would be generous to his shortcomings.

W. C. P. A. SUBSCRIPTION.—Proposed by Mr. Bayzand, and seconded by Mr. Halliley that, as the Funds of the Association were in a sound position, the subscription to the Association for the ensuing year be reduced to ½ anna per acre. Carried unanimously.

S. I. P. B. FUND.—A misunderstanding existed in the minds of several of those present as to the way in which subscriptions were to have been collected, and the Honorary Secretary was directed to write to the Secretary, U. P. A. S. I. for information on this point.

Mr. Browne asked for information as regards those members who had subscribed towards this fund prior to the war, and then, owing to their being away on duty, etc., had discontinued their subscriptions; he wished to know whether in the event of their now paying the balance subscription due by them they were entitled to the benefits of the fund, or was it necessary that they should pay the full subscription of Rs. 200 now, to entitle them to become members. The Honorary Secretary was instructed to obtain the required information. Further, the Honorary Secretary was directed to approach the Secretary, U. P. A. S. I. with a view to finding out what benefit the Association derived, if any, from subscribing towards this Fund.

Mr. Walmesley called attention to the fact that practically no subscriptions were received towards this fund during the past year, and added that, in view of the present hard times, the calls on the purse of the S. I. P. B. Fund were likely to be increased, and he was of opinion that the Honorary Secretary should write to all the Members of the Association, asking them to take a more generous view with regard to this very deserving Fund, and to point out that the *minimum* subscription was Rs. 10.

LAND GRANTS.—Correspondence was read and noted.

AUXILIARY FORCE.—Read letter from Advisory Committee asking for names of qualified medical officers, of whom members would approve to act as Medical Officers under the Auxiliary Forces Act, 1920. The Honorary Secretary was instructed to reply giving the names of the following gentlemen:—

Dr. G. N. Coombes, L. M & S., P. C. M. O & Durbar Physician, Cochin.	Dr. K. D. Mugaseth, L. M. & S., Calicut.

INTER-DISTRICT SPORTS.—The meeting agreed that the amount of subscription towards this be paid out of the Association's funds.

RICE ISSUE.—Correspondence was read and noted.

LICENSING OF CARTS.—Mr. Bayzand informed the meeting that the District Board had already framed bye-laws for the registration of carts, and also for the regulation and control of timber traffic on certain roads in the District, but it was pointed out by several members that these had seemed to have little or no effect. Mr. Thomas then addressed the meeting, and it was decided that the Honorary Secretary be instructed to write to the Collector of Malabar giving details and inviting his attention to this matter. Mr. Eaton thanked Mr. Thomas for his attendance, and said how grateful they were for his information regarding this matter.

Proposed by Mr. Walmesley, and seconded by Mr. Halliley:—That a hearty vote of thanks be accorded Messrs. Eaton and Bayzand for their services during the past year, and for all the interest that they had taken in Association matters. Carried unanimously.

TIME AND PLACE OF NEXT MEETING.—It was decided to hold the next meeting at Cochin on Saturday the 16th July at 10-30 a. m.

With a vote of thanks to the Chair and to the Malabar Club for the use of the room, the meeting terminated.

(Signed) S. P. EATON,
Chairman.
(Signed) H. H. TIPPETTS,
Honorary Secretary.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

COIMBATORE,
27th April, 1921.

SECRETARY'S REPORT No. 16.

1. ROADS.—The following communication has been received from the Government of Madras, P. W. D.—

> "The question of financing the scheme of improvements to the Uthamapalayam-Kuruvanath Road is under correspondence with the Madura District Board, and orders on the scheme will be issued as soon as possible."

2. RESTRICTION OF SHIPMENTS OF TEA.—The following is an extract from a circular issued by the Indian Tea Association.

> "The following telegram has been received from the Indian Tea Association (London):—"Stocks in London bonded warehouses larger than ever; Committee strongly recommend shipments during May from Calcutta and Chittagong be restricted to 20 million lbs." In view of the terms of this telegram the General Committee, I. T. A. would urge members to restrict their shipments as requested by the London Association."

3. ECONOMIC CONDITION OF ESTATE LABOUR.—At the request of the Superintendent of Census Operations, Madras, an attempt was made by this office to collect information for him regarding the number of labourers employed on estates in South India, how, wherefrom, under what conditions, and for how long recruited, their nature of work, earning and numerous other details. Owing to no replies at all having been received from some Districts, the report forwarded was far from complete. The Census Superintendent has expressed his thanks for all the information sent in.

(Signed) C. H. BROCK,
Ag. Secretary.

Scientific Research in Relation to Agricultural Problems.

At the organizing convention of the Canadian Society of Technical Agriculturists, held in June, 1920, at Ottawa, an address was delivered by PROF. W. P. THOMPSON, of the University of Saskatchewan, dealing very clearly and forcibly with the importance in modern days of research workers in agricultural subjects. The main points of this address seem well worthy of presentation and interpretation.

Agricultural scientific research suffers more than any other form of industrial research from a lack of realization on the part of the general public of its possibilities. This is perhaps due to the familiarity with agricultural problems on the part of those who reside in agricultural communities. The value of research in relation to manufacturing industries is generally admitted, perhaps because of the mystery which still surrounds the subject of chemistry in the minds of most people. But with regard to agriculture, it seems to be held that there is no real need for investigation into such commonplace operations as ploughing, planting and reaping.

In reality, agriculture, like other industries, has reached a stage at which little further progress can be expected from casual observation or the accumulation of experience derived from rule-of-thumb experiments. Future progress will result only from the careful application of scientific facts and principles to agricultural problems, which problems are just as difficult and complex as those of any other industry. The actual financial benefits which have accrued wherever scientific agriculture has been properly applied, are not surpassed by those in any other industry.

The problems, the investigation of which is likely to result in departures of importance, demand, however, knowledge of an unusually wide range of fundamental subjects, and agricultural research is therefore peculiarly dependent upon so-called pure science. The workers in these fundamental subjects supply, so to speak, the raw material of definite scientific information, while the technical agriculturists work upon the manufactured article of improved agricultural practices. Reliable information on the latter point can then be supplied to planters or farmers by actual demonstration.

There should be effective co-operation between the research worker and the practical agriculturist, and the former should receive as much stimulus from the latter as the latter from the former. The practical man knows the problems, and discovers wherein information is lacking in order to solve them. He should be able to enlist the services of the scientific research worker as to their solution; and frequently, by so doing, the practical man discloses to the research worker the need for detailed investigation into some fundamental subject, which may well result in an advance in theoretical science.

In order to grapple with the majority of agricultural problem the need of team work becomes evident. A number of experts, attacking a problem conjointly in various directions, bring to bear on it so many different points of view that danger of failure to find out at least something of importance about the subject is greatly minimised. It should not be imagined, however, that co-operation between experts can replace individual research, but it can make the individual research worker much more effective in solving certain problems. Numerous problems come before the notice of agriculturists, and some of these can, it would seem, only be tackled successfully by individual workers. Consequently, it should not be laid down as an inflexible rule that all problems are best attacked by team work. Problems which are easily outlined, clearly defined—which possess a high probability of successful solution when vigorously studied, and which are of such a nature that the methods of attack are fairly obvious, yield most readily to team work. On the other hand, problems which are somewhat vague, or which are of the type that promises little in the way of directly successful solution, are best undertaken by an individual worker of special ability, perseverance and imagination, for in such a case the work cannot be outlined sufficiently clearly to allow of the allocation of different phases of it to different experts. In an institution, therefore, for the furtherance of research, there should always be a place for such individual workers, with substantial financial aid, and with freedom from other duties.

In Government departments and institutions, there has hitherto seemed to be a tendency to cramp and hinder some of the individual types of research workers, by insisting upon a clear definition of the object of the work before it has been begun, and by periodical demands for a statement from each research worker of his progress and findings. In teaching institutions, as in many of the universities, these limitations do not exist to any extent, and the value of the freedom resulting is shown by the final results of the system when they are examined. When a research worker is in a position to devote his time and attention to research, without giving minute statements beforehand of his object, he is more likely to break new ground than if every research has to be justified in advance. A research worker ought to be perfectly free to choose his problems, and to determine how far he may follow up his research work. One of the chief attractions in such work to the enthusiastic worker is that he seldom knows where a line of investigation is going to take him.

It would appear advisable for research workers in fundamental scientific subjects to make a judicious choice of problems and materials before commencing a definite piece of work. In agricultural research for example, a plant physiologist could just as well make use of a crop plant of economic value in examining into certain phenomena, as employ a plant of no economic interest. By so doing he is quite likely to reveal, perhaps incidentally, perhaps directly, information of great practical importance concerning the plant which he is investigating.

The subject of the nature of the work of scientific agricultural research workers deserves some allusion to the remuneration which such scientists should receive. The agricultural research worker labours under a certain disadvantage, in that he does not share in the financial benefits which secure from his work, as is the case, in part at least, with the industrial research worker. Although the work of the agricultural research worker may result in much financial to benefit the cultivation of particular crops, it is not likely that he will profit at all, or only very slightly, from the results of his researches. If able research workers are to be attracted by, and to be retained in the pursuit of the solutions which agricultural problems demand, the remuneration given to them, in order to allow them freedom to attack those problems with success, ought to be sufficient to make possible a life of decent comfort.—" Agric. News," Vol. XIX, No. 484.

LOCALLY OBTAINABLE MANURES.

Nowadays, when every Tea Planter is considering restriction of crop and reduction in expenditure, the question of manuring becomes extremely complicated. In most cases, the addition of manure is made with the object of obtaining a return the same season in the form of an increased crop. From this point of view, manuring at the present time will naturally not be undertaken. However, from another standpoint the question is quite different. On many gardens the soil has been "made" by years of hard work and careful consideration A silt is not rendered tractable, nor a clay lightened, nor a sterile sand made fertile in one season. The work stretching over years is continuous, and soil which has been got into "good heart" should not be allowed to deteriorate because of the state of the tea market A soil in good condition is the garden's greatest asset, which should not be allowed to suffer depreciation Organic matter always, and frequently lime and phosphoric acid also, are necessary for the maintenance of condition. The most expensive item of a manuring programme, nitrogen, may generally be left out when immediate leaf production is not required; but some nitrogen should, if financially possible, be applied to cut-back tea.

In the present state of the tea market, manuring should be confined to the minimum necessary to maintain the soil and bushes in good condition, and it is of course necessary that the cost of such manuring should be as low as possible. It is the object of this article to enumerate these locally available manures which are relatively cheap, and to indicate the most economical methods of application.

Cattle Manure —With the idea of permanently improving the soil our thoughts naturally turn to cattle manure, which can frequently be obtained on the spot at a low cost. It is interesting here to note some of the remarks made by Dr. E J. Russel, F R. S , at a meeting of the Farmers' Club on 31st May, 1920.

"Not many years ago it used to be the custom for certain representatives of agricultural science to extol the virtues of artificial manures, while farmers, on the other hand, stoutly maintained the superiority of farmyard manure. In recent years the position has changed. It is now the scientific worker who emphasises the importance of farmyard manure and the need for making and storing it properly. Farmyard manure and artificial fertilisers do not compete with one another; they serve quite different purposes in the soil. No farmer can do without artificials, no matter how much farmyard manure he may have at his disposal, and conversely, no arable farmer, except in a few special districts, would like to do without farmyard manure, even if he could have unlimited supplies of artificials at very low prices. The best results are always obtained on arable land by proper combinations of farmyard and artificial manures although on grazing land farmyard manure may not act well.

So far as is at present known, the effects produced by farmyard manure in the soil are three :—

1. To supply nitrogen and potash to the plant
2. To improve the physical condition of the soil, and thus increase its capacity for going into a good tilth and holding water. The effect of this is to steady the yield.
3. To assist some of the micro-organisms of the soil.

Only in the first of these is there any competition with artificial fertilisers, and even here the competition is restricted, because artificials usually exert their full action on the crop to which they are applied, while farmyard manure does not."

The loss of the urine from cattle manure as usually collected in Assam, renders it of very small value as a potash manure, but of much greater value as a phosphatic manure than it is in England.

The chief effect of cattle manure is seen in the tilth of the soil. On a heavy soil the manure may be added as soon as collected, but on light soil it should be well rotted, otherwise its effect may be to render the soil still more "open." Well rotted "humus" will, on the contrary, exert a beneficial "binding" action on such soils.

A question which follows is that concerning the most efficient storage of cattle manure. On this subject Agricultural Chemists have not yet come to a final decision, but it is clear that during the making, it should be kept from exposure to the weather, and should be covered by a roof, or a layer of earth. It should also be kept as tightly compacted as possible. It is estimated that in England, at present prices, the value of cattle manure is increased by about 3*s.* per ton, bringing the total value to 15*s.* per ton, by the provision of a shelter.

The composition of cattle manure varies so greatly according to the methods of collection and storage that it is difficult to fix any average, but as delivered on the garden it will have approximately a value of about 4 annas per maund, and, as it can generally be obtained at very much less cost, its use will prove economical compared to imported manures. As pointed out in a previous number of this Journal, cattle manure is commonly applied to tea in doses too large. In economical use, it will be applied at not more than 5 tons per acre.

Such an application will not result in any rush of leaf, nor will it render bushes more liable to blight attack, but will secure the soil from deterioration.

A full account of cattle manure, its making and storage was given in "Quarterly Journal," Part III, 1918.

Oil Cake.—The next most common local manure is oil cake. Its use at present, however, is not advised, not only because of its high price, but also because its chief function is to increase the nitrogen supply, and hence the leaf. Where nitrogen is essential however it may pay to use oil cake where obtainable at less than Rs. 3 per maund. The nitrogen content is usually about 4½ per cent The latest prices of artificial nitrogenous manures work out to about Rs. 18 per unit of nitrogen. At this rate oil cake would be worth Rs. 81 per ton, about Rs. 3 per maund, or rather more on account of its content of organic matter and a small percentage of phosphoric acid.

Recent experience at Tocklai has shown that its action may be very slow. In the case referred to, the locally bought cake contained an abnormally high oil content of 15 per cent Its rate of decomposition and consequent rapidity of action would be increased if used in conjunction with lime or wood ashes, and it is also helpful to use very small quantities of cattle manure with it.

Wood Ashes.—A local manure of great value, yet generally neglected, is wood ashes. If coolies could be induced to bring in ashes from the lines, a very efficient manure at low cost would be obtained. Clean wood ashes would probably average about 10 per cent potash and 5 per cent. phosphoric acid besides some lime Line ashes which are mixed with earth would contain possibly half these values. Tea soils are usually well supplied with potash, but with cut-back tea an extra supply is particularly useful. The potash is present as carbonate, which salt, together with some lime reduces the soil acidity. The charcoal present in the ashes greatly improves the soil tilth and probably has some more complicated action. Thus, by virtue of the great surface, charcoal, which still retains the cellular structure of the original wood, is capable of absorbing and storing ammonia which would otherwise escape and be lost to the plant. There is also evidence to support the idea that charcoal removes soil toxins. Wood ashes followed by a green crop is an ideal treatment for improving the soil condition.

Assuming that line wood ashes contain 5 per cent. potash their present value (taking the value of potash as Rs. 8 per unit) on this constituent alone is about Rs. 1 6 per maund, and it would certainly be profitable to pay anything less than this sum to induce coolies to bring in wood ashes.

Coal Ashes.—Coal ashes cannot be used as a manure. Analyses carried out at Tocklai have shown that they contain sulphur in various combinations poisonous to the plant. Exposure to the air brings about the oxidation and destruction of these compounds, but even then the fused glass-like substances (clinker) which make up the bulk are useless as manure, and the most economical use of such material is to put it on the roads

Soot.—Sometimes limited quantities of factory soot are available. Household soot may contain up to 7 per cent ammonia. Factory soot may contain as little as ½ per cent. nitrogen, but that is as much as is contained by average cattle manure. Soot contains its nitrogen in a very readily available form, and also exerts a good mechanical effect on clay soils.

Bones.—Some tea companies are now paying Re. 1 per maund for bones which after crushing are used as a manure. Bone meal now costs about Rs. 5 per maund. Experiments at Borbhetta have shown that bones even when in pieces measuring from a half to two inches in length are still effective, though much slower in action than finely ground bone.

Jungle.—Green jungle contains all the potash, phosphates and lime which are found in wood ashes, together with nitrogenous and organic matter which the latter, of course, lack. The nitrogen averages about 0·04 per cent. of the total green stuff, and this, with other constituents has been proved at Borbhetta to be in a form readily available, so that it could be used for cut back tea. Similar, of course is the action of green manures, though in this case the tea suffers during the time the green crop is growing.

Three tons per acre of cut green jungle (excluding wood more than finger thick) will be about the required dressing.

As a manure for cut back tea it should be hoed in, in the spring, so as to be lightly covered with soil.

Unsaleable Tea.—It has been suggested that low grade tea, the sale of which does not pay for boxes and carriage, may be used as manure.

Tea, of course, contains the valuable constituent *caffeine* which could easily be extracted on the garden. As however the market for this substance is very limited, it would become valueless if a large supply were thrown into the market, and the manufacture of caffeine in India on any scale would mean the loss of the American market for tea unfit for human consumption.

It is possible, therefore, that caffeine manufacture does not offer any very bright prospects. Waste tea, assuming it to contain about 2 per cent nitrogen, 1½ per cent potash, and ¾ per cent phosphoric acid would be worth about Rs. 50 per ton as manure, or about 4 pies per lb. only. Its use as manure, therefore, can only be justified when its sale would result in a profit of less than 4 pies per lb. Its value to the bush will be very much greater, if by finer plucking, the poor quality leaf is left on the bush, when it will function as an active provider of manufactured food.

AVERAGE DRESSINGS.

For maintaining soil in good condition:—

(1) Cattle manure 5 tons per acre, applied at any time when labour is available.

(2)	Bone Meal	... 1½ maunds	about April.
	green crop		
(3)	Wood ashes	... 8 maunds	about April.
	green crop		

(4) or where phosphates are not greatly required, (*e g.* many Dooars gardens)

green crop only... . about April.

(5) Green jungle or a specially grown green crop, trenched in. This is of very great value on heavy soils, or soils in which a pan has formed.

For cut-back tea—

(1)	Cattle manure Wood ashes	5 to 10 tons p. acre .. 5 mds p. acre	any time, probably best before cutting down.
(2)	Soot Wood ashes	... 2 tons p. acre .. 10 mds. p. acre	about April
(3)	Green jungle	3 tons p. acre	about March
(4)	(*a*) Oil cake Wood ashes	5 mds. p. acre 5 mds. p acre	... ..
	(*b*) Oil cake Cattle manure Wood ashes	.. 4mds. p acre ½ ton p acre .. 5 mds. p. acre	mixed *immediately before* application, and applied about March.
(5)	Unsaleable tea	... 12 mds p. acre	about March.

C. R. H in the Indian Tea Association, Scientific Department, 'Quarterly Journal," Part IV, 1920

NOTES AND NEWS.

The Inter-District Tennis Tournament.

In the first round the High Range have beaten the Anamallais. The scores were :—

DOUBLES—

High Range.		Anamallais.	Points. High Range.	Points. Anamallais.
H. L. Pinches ... J. S. Hawkins ...	Beat	C. R. T. Congreve. J. H. B. Sullivan.		
	6—1, 9—7.		3	0

SINGLES—

High Range.		Anamallais.	Points. High Range.	Points. Anamallais.
H. L. Pinches	Beat	J. H. B. Sullivan.		
	4—6, 6 1, 6—0.		1	0
J. S. Hawkins	*versus*	E. G. F. Maule.	0	0
	8—10, 6—2, (abandoned).			
		Total Points ...	4	0

In Group C the matches will be played at Ooty on April 30th. In Group A the West Coast have scratched to Peermade, so that the latter team have now to play Mundakayam. The High Range have now to play the Shevaroys, and it is hoped to fix this match shortly at Coimbatore.

The Nilgiri-Wynaad Team, owing to unforeseen circumstances, has, at the last moment, been obliged to scratch to the U. P. A. S. I., who thus have to play the winners of the match, Wynaad *versus* Nilgiris.

Ceylon Tea.

Particulars of Ceylon Tea exported by rail *via* Tallaimanaar to the following stations in South India :—

	lbs.
Ayyampet	740
Ramnaad	50
Badagara	9.360
Tirur	3,400
Palghat	1.000
Cannanore	1,750
Total ...	16,300

These figures are taken from the "Ceylon Chamber of Commerce" Weekly Price Current, dated 4th and 11th April, 1921.

The Deputy Director of Agriculture.

We take the following from the Deputy Director of Agriculture's report for March, 1921 :—

"COFFEE STATION, SIDAPUR.—The month was practically rainless, only 0·33 inches being received. Pruning and suckering was completed on the whole station, and the regulation of permanent shade was finished.

"RUBBER STATION, MOOPLY.—No rain was received. The trees look healthy and have flowered, but, owing to cloudy weather, they have fortunately set little seed.

"The floor of the Farm Manager's quarters was tiled, and deepening of the well was in progress.

"RUBBER STATION, TENMALAI.—Little rain was received, only 0·82 inches being recorded.

"A complete round of weeding was done during the month, and most of the drains were cleared. Cutting and burning of dead branches was continued. The well was deepened by 3½ feet, and a good supply of water obtained.

"TEA STATION, PEERMADE.—Practically no rain was received till the end of the month, when ½ inch was registered. The yield of green leaf was 3,664 lbs. Blasting of rocks in the well was in progress, but no good supply of water was obtained."

Mr. R. D. Anstead.

We have not heard from Mr. Anstead at time of writing. He was due to arrive at Colombo on 25th inst., so should reach Coimbatore by the time these lines are in print.

The Value of the Rupee.

The " Export World " for April says :—

In the House of Commons a few days ago, Mr. Montagu (Secretary for India), in reply to Mr. Clough, who asked whether native traders in India were refusing to meet British liabilities except at 10 rupees in the £, said he understood that most of the important piece-goods associations had passed resolutions against the payment of drafts under 2s. a rupee rate of exchange. The Government of India had informed him that they did not consider that they could usefully intervene in the matter. At a meeting of the Associated Chambers of Commerce of India and Ceylon held last January the Financial Member of the Government of India strongly criticised the policy of refusal to meet contractual obligations, and he entirely approved of that view.

Mr. Montagu, in response to a further question, said the loss occasioned by the fall in exchange (amounting in some cases to 40 per cent), coupled with persistently low rupee prices for cotton-piece goods, had afforded strong inducement to find excuses for evasion of contract. An unfounded contention had been set up that Government had given an undertaking to stabilise the rupee at 2s, and some defaulters were sheltering behind this plea.

During the general discussion on the Budget, which took place recently in the Indian Legislative Assembly, it was contended by representatives of Indian commercial interests that non-fulfilment of contracts was not due to any lack of morality, but purely to actual inability to pay—some speakers, indeed, alleging that, unless some settlement were arrived at, wholesale bankruptcy would follow. The Minister added, however, that the banks are doing their best to enable liquidation of the position to be carried through without undue embarrassment. He expressed the hope that a course of repudiation which must be injurious to India's commercial credit throughout the world will not be persisted in.

The Tiruppur Cattle Show.

This show is to be revived, and will be held this year from 23rd to 25th May. On a previous occasion the Anamalais had a Tea Stall at the Show, and we are asked to state that exhibits of Tea and Coffee would again be welcomed this year. They should be sent to Tiruppur by the 20th May and addressed to the Tahsildar and Local Secretary, Tiruppur Taluk Office.

U. P. A. S. I. Gazette.

Several changes have taken place recently in the office-bearers of different Associations.

ANAMALLAIS :—

Chairman :—J. Hatton Robinson, Esq.,
Valparai Estate,
Valparai.

General Committee, U. P. A. S. I :—J. Hatton Robinson, Esq.,
and
E. W. Simcock, Esq.,
Stanmore Estate,
Valparai P. O.

COORG :—

Honorary Secretary :—W. Egerton, Esq ,
Balayatrie,
Mercara P. O.

MUNDAKAYAM :—

General Committee, U. P. A. S. I :—F. G. Millar, Esq.,
Boyce Estate,
Mundakayam,
and
F. H. Moulton, Esq ,
Eldorado, Mundakayam.

WEST COAST :—

Honorary Secretary :—
H. H. Tippetts, Esq.,
Calicut Estate, Tamaracherry P. O.

General Committee, U. P. A. S. I :—
S. P. Eaton, Esq ,
Pullangode Estate, Pullangode P. O.
via Manjeri,
and
A. C. Morrell, Esq.,
Kaliyar Estate, Thodupuzha P. O.

N. MYSORE :—

Chairman :—C. H. Godfrey, Esq.,
Aldur.

General Committee, U. P. A. S. I. :—
C. H. Godfrey, Esq., Aldur P. O.
and
E. L. Poyser, Esq., Kelagur, Balur.

S. MYSORE :—

Chairman :—C. Lake, Esq.,
Saklaspur.

General Committee, U. P. A. S. I. :—
C. H. Godfrey Esq., Aldur,
and
C. Lake Esq., Saklaspur.

Coffee Prices.

Messrs. Peirce Leslie & Co., in their coffee circular this week, state that a fair amount of business has been done locally. Prices ranged from Rs. 50 in bags for Anamalais to Rs. 52 *ex* bags for a small lot of good Nilgiri. Cable advices from London indicate an improvement in that market, which has been very dull lately.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" Coffee.

(BY CABLE.)

LONDON, DATED 29TH APRIL, 1921.

110s. per cwt, Market Steady.

THE DEPUTY DIRECTOR OF AGRICULTURE, (Planting Districts)

Mr. R. D. Anstead, M.A., returned to Coimbatore from home leave on Saturday last, and resumed his duties as Deputy Director of Agriculture, Planting Districts.

Mr. Anstead will be resident at Coimbatore in No. 2 Bungalow, Lawley Avenue at the Agricultural College, and his office will be situated at his bungalow. His official address will be as before, and all official correspondence should be addressed to—

The Deputy Director of Agriculture,
Planting Districts,
The Agricultural College,
Coimbatore—Lawley Road P. O.

Mr. Anstead hopes to go on tour shortly (by the end of the present month at latest) to visit the four Planting Experiment Stations which are now in working, and the Mycological Station. At the same time, he will be glad to meet any planters in the following districts who may wish to see him, if they will be good enough to communicate with him *as soon as possible* :—Coorg, Malabar, Cochin, Mundakayam, and Peermade. A tour programme will be published in the *Planters' Chronicle* in due course, but before settling dates Mr. Anstead will be glad to hear from individual planters who may wish to consult him, and also of the dates of Planters' Association meetings in the districts mentioned. Should any of the latter coincide with his visits he will be glad to arrange to attend them.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

COIMBATORE,
4th May, 1921.

SECRETARY'S REPORT No. 17.

1. INCORPORATION OF DISTRICT ASSOCIATIONS.—The applications for incorporation are at present with the various Governments concerned, and the Governments of Madras and Mysore have advised the Association's Solicitors that they will shortly pass orders in regard to them.

2. THE ANNUAL GENERAL MEETING.—The President, Municipal Commission, C & M, Station, Bangalore, has very kindly consented to place the Mayo Hall at the disposal of this Association from the 22nd to the 26th August next for the Annual General Meeting.

3. THE MADRAS CHAMBER OF COMMERCE.—Your Acting Secretary has been elected as an Honorary Member of the Chamber in place of Mr. Waddington who is at home on leave.

4. THE "PLANTERS' CHRONICLE".—The Executive Committee have agreed to renew the Yearly Agreement with Mr. Edwin Vincent for editing and managing the "Planters' Chronicle."

5. IMPERIAL SHIPPING COMMITTEE.—With reference to Item 1, Secretary's Report No. 3, the following is an extract from the reply from that Committee with reference to the Cochin Harbour.—

> "The Committee understand that the subject is engaging the attention of the harbour authorities of Cochin and of the Madras Government, and that steps would have been taken some time ago to dredge the necessary channel to enable ocean going ships to enter the Port of Cochin had there not been difficulties in the way of securing a dredger. The Committee have no reason for thinking that the development of the Port on the lines your Association would desire is being delayed more than is necessitated by the physical and financial conditions".

(Signed) C. H. BROCK,
Ag. Secretary.

ANAMALLAI PLANTERS' ASSOCIATION.

MINUTES OF THE SIXTEENTH ANNUAL GENERAL MEETING OF THE ANAMALLAI PLANTERS' ASSOCIATION, HELD AT THE ANAMALLAI CLUB, ON WEDNESDAY THE 20TH APRIL, 1921, AT 10-30 A. M.

Present.—Messrs. C. R. T. Congreve (Chairman), J. A. R. Lloyd, F. Simmons, E. N. House, J. E. Carless, G. P. White, S. Sladden, J. Hatton Robinson, J. H. Ireland-Jones, J. H. B. Sullivan, W. Ogilvy, E. W. Simcock, J. O. K. Walsh, H. O. D. Walsh, D. Cooper, G. B. Reade, A. W. F. Mills, C. L. Napier, J. P. Curwen, H. Stuart, and J. E. Sampson (Honorary Secretary).

VISITOR.—Mr. Robertson.

MINUTES.—The Minutes of the following meetings were taken as read, and confirmed :—

1. The Extraordinary General Meeting, held on the 8th February, 1921, and

2. The Extraordinary Meeting of the General Committee, held on the 1st March, 1921.

The meeting of the General Committee, held on the 5th April, 1921, was considered to have been out of order, there having been no quorum present. The Minutes were, therefore, not confirmed.

CHAIRMAN'S ADDRESS :—"Gentlemen,—The past year has been fraught with many difficulties for the Planting industry. We have seen the prices of all our products steadily dropping, whilst our expenditure, owing to higher wages and increased cost of all requisites, has steadily risen. The outlook for the immediate future seems gloomy, and it can only be by mutual help and co-operation that we shall be able to pull through to those good times which must surely come some day. Whilst on the subject of expenditure, I would especially draw your attention to one item on our Agenda for to-day's meeting. I refer to the possible reduction in inducements to labour, such as extra rice, etc. When these were agreed to, last year, the general impression seemed to be that everything was booming, and that our only ill was an insufficiency of labour. Although at the time a note of warning was struck, no notice was taken, and not only was the rate of pay increased, but also all sorts of extra inducements to labour were agreed to. The results, I think I am right in saying, have not justified the extra expenditure, and I would ask you all to give this item on the Agenda your most serious consideration, and to see whether we cannot to-day find some means, not only of reducing the expenditure, but also of working more together, and thus stopping the inter-estate competition for labour, which does nobody any good, and only tends to upset our coolies. If something of this sort can be done, I feel sure we shall none of us regret it, but find that instead of our having increased troubles with labour, we shall reduce them to the lowest possible limit."

"At the last Annual General Meeting, I drew your attention to the urgent need for consideration of transport problems. Although to the uninitiated it would appear as if little had been done during the past twelve months ; in reality a great step forward has been taken. Owing largely to the help of H. E. the Governor of Madras, and to the Cochin and Travancore Durbars, the Railway Board appointed a surveyor to make a reconnaisance survey for a line from Cochin to Munnar, passing through this District; and from information received good progress is being made with the work, and I hope it will not be long before we know the proposal is a feasible one. At least two estimates for the construction of an Aerial Ropeway from the foot of the hills to Paralai have been submitted, and we have been assured that there are no natural difficulties in the way of such a ropeway being constructed."

"Several most interesting demonstrations of mechanical lorries up our Ghaut have lately taken place, and they prove without question that this form of transport is not only possible, but with some improvements to the bridges and corners, economically sound. The necessary survey for these improvements has, I understand, been carried out by Gavernment, and I hope steps will be taken at a very early date to carry them through."

"There can be no doubt that the necessity for starting some other means of transport to supplant the present uncertain and slow country carts becomes more apparent every day, and now that we have the necessary data to work on I trust steps will be taken to start some form of transport company, to take over the whole transport of the District, and thus relieve us of one of our greatest anxieties and difficulties. Another great question which has been before us for some time, is that of starting our own District Board. During the past year. estimates for running this have been drawn up and are now before Government, and I hope, before long, we shall see our new Board inaugurated. There are sure to be many difficulties at first, and patience and co-operation amongst us will be very necessary, but I feel sure that with the help and sympathy of Government we shall prove equal to undertaking the responsibility, and show how well we merit the trust imposed in us."

"In October last we had the honour of a visit from H. E. The Governor of Madras, and, at an informal meeting, we put before him our most pressing problems. As mentioned before, it is largely owing to his interest that the Railway Board agreed to the survey for the Cochin Railway, and we also have to thank him for seeing that our Ghaut Road, which was allowed to deteriorate to an alarming extent last monsoon, was thoroughly repaired."

"Our best thanks are due to H. E. for all he has done for us, and I hope, before long, we may be honoured with another visit from him."

"It is satisfactory to note that Government are at last constructing the short piece of road to link up the Paralai-Castlecroft Road at the Post Office, with the Stanmore-Sirikundra Road near the Club. If, however, steps are not immediately taken to improve the length of road between Paralai and the Post Office, the new link will prove of little value to the District, as this section was never designed for heavy traffic. and is, for most of its length, narrow and unmetalled; and if heavy traffic is allowed to use it during the wet weather it will become impassable. I trust the meeting will point this out to Government, and that steps will be taken at a very early date to undertake the necessary alterations and improvements to make the road a first class one."

"During the year under review, two Chatrams have been built on the Ghaut Road, one at Mile 14 6, and the other at Paralai. These should fill a long-felt want, and be of great benefit to our labour, coming up and down.",

"The question of establishing a police station in the District is, I understand, before Government. Recent events have gone to prove how necessary a resident police force has become, and I hope it may not be long before the necessary arrangements are made to build the required quarters for them. I should imagine that at the present time this District enjoys the unique position of having a population of some fifteen to twenty thousands, with no police station within 30 miles."

"This Distrist has been selected for the Head-quarters of the general Planting Mycologist Station, and the Director of Agriculture lately visited us to select the site for the Station. I hope, ere long, we shall see the necessary buildings commenced, as the services of the Mycologist for the Planting Industry are urgently required."

"Before closing, I wish to thank our Honorary Secretary for all he has done for us during the past year. Himself a busy man, no extra work seems to come amiss to him, and everything he is asked to do he does with such thoroughness that leaves nothing to be desired. It was almost entirely due to his great personal interest and tact that this District holds the unique position of having every man interested in Planting a member of the Southern India Planters' Benevolent Fund, and it stands as a monument to his efficiency. On your behalf, as well as my own, I wish to thank him most sincerely. With his help, the office of Chairman is practically a sinecure. I have also to thank the members of the Committee for their ever ready help, and for the way they have always attended meetings, however inconvenient, and you, gentleman, for the way you are borne with me during the past year."

"In conclusion, gentleman, I now place my resignation in your hands."

HONORARY SECRETARY'S REPORT.—Mr. Chairman and Gentleman.—I beg to place before you my report on the work of the Association during the past year."

MEMBERSHIP :—"There are now 35 Estates on the Association register, and 55 personal members, subscriptions from both estates and personal members having been paid in full."

MEETINGS.—"There have been 8 General Meetings, and 7 meetings of the General Committee, most of which have been well attended. In addition, there have been 3 meetings of special committees to decide points raised under the Local Labour Laws."

ACREAGES.—"The following acreages have subscribed to the Association during the year :—

Tea	12,500¾
Rubber	949
Coffee	4,543
Cinchona	452½
Cardamoms..	2,441¾
a total of	20,893,

being an increase over the previous year of 1,833. From figures received, the acreage for the new year is shown to have further increased by 443."

CROPS :—"With regard to crops harvested during the past twelve months, I regret I am unable to give the correct figures, a few estates having failed to reply to my circular of the 1st. inst., though nearly three weeks have elapsed since then. For those estates from which I have received the figures, the crops are as follows:—

Tea	...	...	2,580,386	lbs.
Rubber	...	...	35,600	lbs.
Coffee	...	...	589¾	tons.
Cinchona	...	...	10,000	lbs.
Cardamoms	...	...	139,307	lbs.

"Tea and coffee show a large increase over the previous year, the opposite being the case with other products."

TOWNSHIP.—This would appear to be in much the same position as at the last annual meeting, at which you sanctioned expenditure of Rs. 1,000 for the erection of six corrugated iron shandy stalls. The corrugated iron for these has been purchased, and the work of erection commenced, the cost to date being Rs. 803-10-2. I am still in communication with Mr. Fraser with regard to a portion of the iron work not having been delivered. The goods have been traced as far as Messrs. Barber & Pascoe's Agent at Pollachi, and Mr. Fraser wrote me on the 14th inst. that he would be interviewing this Agent that week. The only other addition to the Township is the Medical Officer's bungalow, now nearing completion."

CHATRAMS:—The erection of two Chatrams at Mile 14·6 and Mile 21·4, is now complete, the expenditure during the year having been Rs. 1,507-5-7. To this must be added the expenditure during 1919-20, Rs. 773-15-6, making a total of Rs. 2,281-5-1, against Rs. 2,500 sanctioned by you at a meeting held on the 6th October, 1919."

"I have recently had complaints from one Manager that his coolies, while using the Chatram, have been interfered with by Government Road coolies. I accordingly wrote to the Executive Engineer requesting him to issue instructions to the effect that Government labour shall not make use of these buildings."

PLANTERS' BENEVOLENT FUND.—"You will no doubt have read with pleasure, in the *Planters' Chronicle* of the 2nd instant, that the entire District is now supporting the Fund. We have now four resident Life Members, (one of whom has promised a further sum of Rs. 50 annually), one Member who has subscribed Rs. 40 for this year, and promised Rs. 30 annually in future, and 47 Members subscribing Rs. 10 annually, including one gentleman who, though, according to the rules of the Fund, not entitled to any of its benefits, has kindly promised an annual donation of that amount. I hope future new arrivals will assist the District to maintain its present position: that of the most regular supporter to the Fund."

ACCOUNTS:—"Copies of these are now before you. They have been audited by Messrs Jones and Cotton, and show a balance in hand, after all assets and liabilities have been settled, of Rs. 3,097-5-2."

In conclusion, gentlemen, I have to offer my best thanks to our Chairman for his very able and kindly assistance. Mr. Congreve has the interests of the Association very much at heart, and has been ever ready with help and advice when I have wanted them. I must also thank the General Committee for their interest and support."

"There have been times, gentlemen, when I could have wished for rather more attention from a few Members, with regard to the payment of subscriptions, and replies to letters and circulars requesting information on various subjects. Just a little more assistance from a few Members would make the work of the Association a comparatively easy matter."

" I now beg to place my resignation in your hands."

It was proposed from the Chair, seconded by Mr. Robinson, and carried unanimously, that the Honorary Secretary's report and statement of accounts be adopted.

Mr. Robinson, referring to the financial position of the Association, mentioned that it had been suggested to him that the Association should become a Patron of the Planters' Benevolent Fund, but considered that it would be wise to keep the necessary Rs. 1,000 in hand, as need of the money might be felt at a later date.

TELEPHONES:—The Honorary Secretary informed the meeting that he had met the Engineering Supervisor of Telegraphs recently. Apparently we could not expect these schemes to go forward until well into next year. In the meantime, if any groups of estates wished to have private lines, these could be arranged much earlier.

ROADS.—The Chairman, referring to his address, spoke of the link road between the Paralai-Castlecroft and Stanmore-Sirikundra Roads, and reminded the meeting that the former road could not at present stand the traffic consequent on the completion of the link road.

Questioned by Mr. Robinson, the Chairman referred to a memorandum, dated the 26th March, 1918, and to a map attached thereto, in which it is shown that Government had not promised to reconstruct the Paralai-Castlecroft Road, but to maintain and repair it.

The following resolution was proposed from the Chair, and carried unanimously:—

That, in view of the early completion of the link road through the Valparai Township, this Association again press upon Government the absolute necessity of broadening and metalling the road from the Post Office to the main road at Paralai, and would point out that, as soon as link road is open for traffic the whole of the transport from some 7,000 acres will be diverted along this road, which, being for most of its length unmetalled, is incapable of carrying such increased traffic".

The following resolution, proposed by Mr. Lloyd, and seconded by Mr. Carless, was carried unanimously:—

" This Association would draw the attention of Government to the present bad state of the Stanmore-Sirikundra branch road, and would request that very early steps be taken to put it in thorough repair, as otherwise it is likely to become impassable as soon as the monsoon starts".

In connection with the Pollachi-Vananthorie road, Mr. Simmons asked if any information had been received as the probable date of repairs. The Honorary Secretary read letter from the President of the Coimbatore District Board, R. O. C. No. 3218/D. B., of 1920, dated the 24th March, 1921, stating that the repairs were reported to have been completed. The Honorary Secretary was accordingly instructed to reply that the repairs are obviously entirely inadequate: also to write to the Chief Engineer requesting that Government shall now treat this as a Trunk Road, and grant the upkeep necessary for such.

Mr. Robinson referred to the possible assistance in this matter to be received from the Kottur Union, and the Honorary Secretary was directed to get into communication with the Chairman of the Union.

TRANSPORT :—Mr. Carless asked for particulars of the running costs, etc., of the F. W. D. and other lorries, and was referred to the last number of the *Planters' Chronicle.*

The Chairman suggested that a sub-committee, consisting of one representative of each interest be formed, and that such committee meet as soon as possible. The suggestion met with the approval of the meeting

The Chairman further informed the meeting that the Postmaster-General had written that he thought there would be no difficulty in arranging for the carrying of the mails by lorry, as soon as a Transport Company had been floated and put into proper running order. The Forest Department also, he thought, would be glad to arrange down loads at such times as lorries were empty.

COCHIN RAILWAY :—Questioned by Mr. Simcock, the Chairman informed the meeting that the survey had actually commenced, that good progress had been made, and that a certain amount of difficulty had been experienced in the jungle. It had been agreed that the survey of the jungle portion should take place first, in order to get the most difficult part completed before the arrival of the monsoon.

MYCOLOGIST.—The Honorary Secretary mentioned that he had met Mr. G. A. D. Stuart, I. C. S., Director of Agriculture, and that, with Mr. Robinson, he had shown him the various sites suggested for the location of the station. Mr. Stuart had been in favour of a certain site on Paralai estate, and a reply was now awaited from the manager of that estate as to whether that piece of land might be had.

AUXILIARY FORCE ACT :—The Honorary Secretary read letter from the Secretary, U. P. A. S. I., No 3047, of the 1st March, 1921, and was directed to forward same to the Honorary Secretary, Anamallai Medical Association, the matter being one for that Association to deal with.

SUBSCRIPTION TO U. P. A. S. I.—The Chairman reminded the meeting that this Association had always been in favour of increasing, rather than decreasing the subscription, and that Mr. ittock had called a special meeting of the General Committee to protest against the closing of certain portions of the Labour Department. Considerable discussion took place, the meeting being of the opinion that the present was not the time to ask for increased subscription, in view of the rigid economy now being practised. Finally, the following resolution, proposed from the Chair, was carried unanimously:—

"This Association views with alarm the reductions in the present U. P. A. S. I. budget on the Labour Department, and propose that such steps as are necessary be taken to alter the Articles of Association to enable the General Committee of the U. P. A. S. I. to raise the rates of subscriptions when and how they consider necessary".

ELECTION OF GENERAL COMMITTEE:—Mr. Simcock proposed the following resolution, which was seconded by Mr. Cooper, and carried unanimously ;—

"That, in view of the various large interests in this District, it is proposed that the General Committee shall consist of one representative of each subscribing interest of not less than 1,000 acres (under one control), that each interest shall elect its own representative : and that the Members so elected at the Annual General Meeting shall hold office until the following Annual Meeting, unless the representative of any interest leave the District when such interest shall have the right of nominating another".

BURNING OF NEW CLEARINGS :—Mr. Robinson reminded the meeting of the way in which the District had suffered during the past two years, owing to the burning of new clearings having taken place much later than was formerly the case. He wished to propose three rules for the guidance of Managers in the future. Considerable discussion took place, and it was considered unnecessary to make rules on the subject, but it was agreed that Mr. Robinson's draft rules, as follows, should be embodied in the Minutes as suggestions for the control of fire in the future :—

1. In every case a Manager of an estate shall give seven clear days' notice to all neighbouring estates before he burns off a new clearing.
2. In cases where new clearings have not been burnt off prior to the 15th January. burning shall not take place until sufficient rain has fallen which, in the opinion of the Managers of neighbouring estates will minimise all risk of damage to adjoining properties.
3. Estate Managers burning off "Loppings," or other inflammable material, during the hot weather months, must discontinue to do so on receiving a written request from the Manager of a neighbouring estate, such Manager stating his reason for the action thus taken, and sending a copy of his letter to the Honorary Secretary, Anamallai Planters' Association. Either party to have the right of appeal to the General Committee of the Association, who shall act as arbitrators in the event of a dispute.

RICE ISSUE AND REDUCTION OF INDUCEMENTS TO COOLIES :—Read letter from the Secretary, U. P. A. S. I., No. 3201, of the 9th March, 1921. The Chairman urged the discontinuance of "loss on rice," free cumblies, rail fare, etc., and considered that the giving of such inducements had not increased the labour force on the Anamallais in the past, and that their elimination would not seriously affect the District now.

Mr. Simmons read portion of a letter from Mr. Stewart, stating that he had made agreements for 1,000 coolies, on the understanding that the inducements were to continue, and that he could not alter same at this stage. Other members also spoke of having readvanced labour, such labour being of the opinion that they would return on the same terms as in the past year. Lengthy discussion took place, and the following resolution, proposed by Mr. Simcock, and seconded by Mr. Sullivan, was lost :—

"That, as from the 1st May, 1921, 'loss' on rice and other grains shall cease, and foodstuffs shall be issued at rates which eliminate all loss to estates."

CORRESPONDENCE :—Read letter from Messrs Best & Co., Ltd., dated the 15th April, 1921, offering rice for sale.

Read letter from the Collectar of Coimbatore, L. Dis. 2713/21, C. I., dated the 5th April, 1921, *re* erection of coolies' lines on the Township.

ASSOCIATION RULES :—In connection with the letter from Mr. Stewart, read by Mr. Simmons (above mentioned), the Honorary Secretary was directed to forward copy of the rules to Mr. Stewart, and to enquire from what districts the 1,000 coolies referred to are recruited : further, to point out that rail fares for both journeys are only payable when the cost of the single journey is Rs. 3 or more.

ELECTION OF OFFICE-BEARERS.—The voting resulted as follows.—

Chairman	... Mr. J. Hatton Robinson.
Honorary Secretary	... Mr. J. E. Sampson.
General Committee	... Messrs. Robinson, Congreve, Simcock Tyler, Carless and Cotton.
Association representatives on the General Committee of the U. P. A. S. I.	... Messrs. Robinson and Simcock.

The Members elected thanked the meeting for the honour, and expressed their willingness to assist to the best of their ability.

Messrs. Robinson and Lloyd, respectively, proposed a very hearty vote of thanks to the Chairman and Honorary Secretary for their work on behalf of the Association during the past year. Carried unanimously.

(Signed) C. R. T. CONGREVE, Chairman.
(,,) J. E. SAMPSON, Honorary Secretary.

INDIAN TEA ASSOCIATION.

ABSTRACT OF PROCEEDINGS OF A MEETING OF THE GENERAL COMMITTEE, HELD AT CALCUTTA, ON 12TH APRIL, 1921.

PROCEEDINGS.—The proceedings of the meetings of Committee, held on 15th and 29th March were confirmed after previous approval in circulation.

CORRESPONDENCE WITH THE INDIAN TEA ASSOCIATION (LONDON).—Letters dated 3rd, 10th, 17th and 24th March from the Indian Tea Association (London) were before the Committee. The principal subjects dealt with in them were as follows:—

(*a*) *Regulation of shipments from India.*—This subject was referred to in these letters. Emphasis was laid on the fact that the position, so far as accommodation in the warehouses at home was concerned, was still very difficult. In the letter of 10th March, for instance, it was urged that, in view of the limited accommodation available, if teas were rushed forward for shipment during March in order to take advantage of the lower rate of freight, there would not be sufficient room in the bonded warehouses to accommodate them, so that the saving in freight might well be wiped out by outlays for penal rates in London. In this connection, too, a reply had now been received to the cable which it was arranged at last meeting to send to London, asking if there were any alteration in the storage position there meriting an increase in the percentage recommended to members in respect of April shipments from Calcutta, namely, 6·4% of their crop for the season. The telegram from London, dated 31st March, stated that the storage position there did not warrant shipments in excess of 20 million lbs.

(*b*) *The tea rate.*—Copies of further correspondence between the London Association and the Liners Conference, London, regarding the tea rate had been forwarded and were noted. It will be remembered that when the Conference, as a result of representations made to them, agreed to vary the tea rate, as determined on the basis of the system stipulated in the agreement, they stated that the reductions made would have effect only for February and March, the agreement rate being subsequently reverted to. Further representations had, however, been made to them on the subject, and these had resulted in an agreement that the rate for April should not be higher than that for March : that is to say, that if on the basis laid down in the agreement the tea rate worked out at more than £ 3-15-0, it would be reduced to that figure.

The Committee noted the terms of the correspondence that had passed on the subject between the London Association and the Conference. They had received a letter, dated 9th April from the Bengal Chamber of Commerce, advising the calculation of the tea rate for April, bringing the rate out at £ 3-11-3. Copies of this letter had been issued to all members in circular No. 31 of 11th April, and the information had been cabled to the London Association. The papers were now to be recorded.

(c) *Indian homeward bills of lading.*—In the letter of 17th March it was stated that certain modifications had been suggested by ship-owners to the homeward bill of lading, and that the London Committee thought there were grave objections to some of these. For instance, the proposed new bill of lading did not give the name of the steamer, but simply stated that the goods had been "received for shipment". A meeting had been held of representatives of Associations concerned in the Indian trade to discuss what action should be taken, and it was then decided, first, to ask the Imperial Shipping Committee to arrange a Conference between ship-owners, bankers and traders to agree on a form of bill of lading for the Indian homeward trade ; second, that legislation should be strongly advocated both at home and in India on the lines of the "Harter" Act ; and third, that freight rebates should be abolished.

The Committee noted the action taken. In this connection they considered a letter, dated 11th April from a member of the Association, forwarding copy of a letter received by them from the Clan Line Agents, which enclosed a revised form of bill of lading for homeward cargo ; it was stated that the revised form would be used in respect of future steamers from both Calcutta and Chittagong. The member drew attention to the fact that, under the tea agreements for Calcutta and Chittagong, any alterations in the form of bill of lading must be agreed on between the parties to the agreements. The Committee decided to address the Clan Line Agents, quoting the relevant clauses in the agreements, and pointing out that any question of adjustment must be first arranged. As the negotiations in connection with both the Calcutta and Chittagong agreements had been carried on in London, it was also decided to forward the particulars to the Indian Tea Association (London) for discussion there. Meantime a circular was to be issued to members of the Association recommending them not to accept the revised form of bill of lading pending such discussion. The Committee understood that the general question had recently been before the Bengal Chamber of Commerce in connection with the report of the Imperial Shipping Committee recommending the introduction of uniform legislation throughout the Empire on the lines of existing Acts, but based more precisely on the Canadian Water Carriage Goods Act, 1910 ; and they thought it desirable to forward to the Chamber, for information, an extract from the London Association's letter on the subject, with the proceedings of the meeting held in London. A copy of the correspondence with the Clan Line Agents on the subject of the proposed revised form of bill of lading was also to be sent to the Chamber.

(d) *The Home Income-Tax Act*, 1918 : *Section* 43.—This section gives relief in respect of diminution of profits or gains due directly or indirectly to the war, so long as the section is continued in force by any subsequent enactment. It appears that there is some doubt as to whether the section has in point of fact been thus continued, and a circular dated 14th March had been issued by the London Association to their members stating that counsel's opinion is to the effect that the section remains in force. To settle the question, a test case is being arranged by the London Association, the Rubber Growers Association, the Ceylon Association in London, and the South Indian Association in London. Copies of the circular were forwarded for the information of the Committee, and they were to be recorded.

PRESENT POSITION OF THE INDUSTRY—HYPOTHECATION OF CROP.—A letter dated 29th March from the Indian Planters Agency Co., Ld., came before the meeting in which was emphasised the need of financial help to save many properties from ruin. It was pointed out that the refusal of banks, and consequently brokers to give advances on hypothecation of crops caused a very serious situation. At the recent treaty with Russia and the increasing consumption of Indian tea in India and the southern countries of Asia promised a better prospect for the trade, the Indian Planters Agency Co. considered that the local banks could have no good reason for withdrawing their support. It was therefore suggested that the Association should take up the matter with the banks with a view to inducing them to render financial help to these concerns, either European or Indian, with such funds against hypothecation of crop as a Committee consisting of European and Indian members of the Association and members of brokers' firms, appointed by the Association, should recommend. This hypothecation, they suggested, could be further secured by managing agents, or by other personal guarantees in the event of the crop sales failing to return the money hypothecated.

The Committee discussed the question carefully, and were inclined to think that the Association could not very well follow the course suggested. They agreed, however, that a copy of the letter should be sent to the Director-General of Commercial Intelligence with a request that he should inform the Committee what steps, if any, had been taken or were contemplated by Government with a view to the relief of the industry as a result of the meeting held on the 23rd November, 1920, which was attended by him and the Controller of Currency. At that meeting different measures of relief were discussed, and it was then pointed out that the concerns most likely to be hard hit by the situation were small proprietary concerns, the majority of which were Indian owned. It had accordingly been suggested that Government should make enquiry into the position of such concerns, and in forwarding to the Director-General a copy of the letter from the Indian Agency Co., Ld , the Committee decided. as stated above, to ask information as to the result of Government's enquiries.

THE INDIAN EXPORT DUTY ON TEA.—In the proceedings of last meeting a cable on this subject, dated 24th March, from the Indian Tea Association (London) was quoted. It stated that the India Office, in view of the budget position, held out no hope of the abrogation of the export duty, but suggested that the General Committee should press for a modification of the duty on a more equitable basis before the budget was finally passed. As stated in the proceedings, the Committee did not feel that they could take any action regarding the telegram. They now had before them a letter of 24th March, from the London Association confirming it. They also had seen in circulation the official report of the debate, in the Imperial Legislative Assembly in March, in connection with Sir Frank Carter's motion that the duty should be abandoned.

The Committee generally discussed the question. They confirmed the view expressed by them at last meeting that nothing further could be done in the matter this year. But there was one direction in which it might be possible to obtain a modification which would remove the anomaly of high and low priced tea paying the same duty, namely, by adjusting the duty so that the better quality teas should pay a greater amount than they now pay, and the poorer quality teas a smaller amount—the gross revenue produced by the duty remaining the same as at present, but the burden being more equitably distributed. It was believed that, if a proposition on this basis were put up to Government they might be disposed to consider it favourably. There were two great difficulties in the way of such an arrangement, namely, (*a*) it would be impossible to obtain unanimity among producers—those interested in poorer teas would favour it, while those whose interests were in finer qualities would naturally be indisposed to accept it; and (*b*) it would be a matter of great difficulty to arrange different basic prices, it would not be sufficient to take district averages, and no method occurred to the Committee which could be applied successfully. This position was to be explained to the London Association.

RESTRICTION OF TEA OUTPUT IN NON-BRITISH COUNTRIES OF PRODUCTION.—In a letter of 31st March, the Director-General of Commercial Intelligence stated that, at the request of the late Chairman of the Association, he had cabled to the British Consular Authorities at Yokohama, Peking and Batavia for up-to-date information regarding the extent of any reduction in the output of tea in Japan and Formosa, China and Java during the current year. He had received the following cable in reply from Peking:—

Output tea at least 80 per cent. for home consumption. Amount produced for export depends upon prices. Current year estimated exports from Hankow, Shanghai black tea 6,000,000 pounds weight as against normal 40,000,000. From Foochow 30,000,000 as against 9,000,000. Total output probably reduced only to this extent. Should trade Russia reopen this spring situation may be changed entirely.

And, in a further letter of 9th April the Director-General of Commercial Intelligence gave the following telegram received by him from the British Consular authorities at Yokohama:—

Japan tea exports to America for season 23 million lbs. To use same markets for the whole year 26 million lbs. Formosa about 6 million Oolongs 8 million Poochongs. Oolongs only third average year. Heavy stock in Formosa amounting to 2½ million lbs. Low and damaged quality being reduced powder for extraction there? Particulars by post.

The second of these telegrams did not appear to be quite clear, and the Committee instructed that the Director-General should be asked kindly to forward, when received, the particulars which were being sent by post. Copies of the telegrams were to be sent for information to the Indian Tea Association (London).

The Rubber Outlook in the Dutch East Indies.

The extra taxes, changes in labour law, and the low prices reigning are items which are causing anxiety amongst the rubber producers here at present, and the Government is proposing to modify the budget for 1920, which will mean a still further increase in taxes for the producers; but naturally, the International Association for Rubber Culture has protested on the grounds that such a policy would certainly scare away foreign capital, which would be very disastrous.

The abolition of the "penal sanction" which is embodied in the proposals would have a very damaging effect on Sumatra in particular which has very large and valuable tracts of undeveloped land and a rather small native population. It is to be hoped that the several representations of various districts here will get consideration to their suggestions of a further number of years of this "penal sanction," and so enable them to retain with a certain amount of surety the necessary labour for the development of these vast areas. *A propose*, the estimated output for Sumatra for 1920 is about 42,000,000 Kilos, a large figure certainly, although one that could be increased considerably if proper fiscal and general policy were adopted.

AREAS.

The official statistics for 1919 showed that in Java and Madura, 463 rubber estates had a planted area of 88,124 Hectares, of which 59,613 Hectares were producing, while the outer possessions showed figures of 351 rubber estates with a planted area of 174,712 Hectares, of which 109,017 Hectares were producing. Therefore the total of 814 estates had a planted area of 262,836 Hectares, of which 168,630 Hectares were producing. (A Hectare equals about 2½ acres). The figures for 1920 will be vastly increased in every direction.

So that with careful handling and a sound sensible policy as a basis there ought to be no cause for anxiety in the future, although the present times are certainly slightly precarious, not only in the Dutch East Indies, but throughout the rubber world in general.

OIL FROM RUBBER SEED.

The following extract from "Commerce and Industries" ought to be of much value to all interested in the rubber cultivation. It certainly opens up great possibilities in this connection :—

There is every possibility of utilising the large quantity of seed now being produced on Rubber Plantations. In the early stages of rubber industry in the middle East the seeds were mostly used for raising plants for making new plantations, but as there are now more than 1,000,000 acres under rubber trees the quantity of seed available is much in excess of the planting requirements. It was shown many years ago by investigations made at the Imperial Institute that the kernels of Para Rubber seeds yield a large amount of oil similar in properties to linseed oil, and that this oil can be used for paint-making and other purposes for which linseed oil was employed, whilst the cake which is left after the oil has been removed from the kernels is an excellent feeding stuff for live stock. Until the last year or two the oil had only been produced on an experimental scale, but at least one oil mill is now established in Malaya for crushing rubber seeds, and small commercial consignments of the oil have been sold recently in Great Britain and in Marseilles at good prices. Whether it will pay the planter to supply the seeds to an oil mill depends very largely on the cost of collection, a point on which experts differ. In view of the present necessity for the exercise of rigid economy on rubber estates, and of the enormous demand for oils and feeding stuffs it is highly desirable that serious efforts should be made to organise the collection of Para Rubber seeds wherever it is likely to prove at all profitable, and so prevent waste of material which is undoubtedly of considerable value.—(*Holland's East India*).

1920.
EXPORTS OF RUBBER IN JAVA;
(in tons of 1,000 kilos).

Destination.	Dec.	Dec.	January/December.	
	1919.	1920.	1919.	1920.
Holland	325	418	2.971	5.011
Great Britain	190	739	7.223	8.802
Germany	...	37	...	146
France	...	10	215	53
Belgium	...	44	...	161
Italy	...	...	...	42
Other Countries in Europe ...	25	...	25	...
U. S. of America ...	2.225	522	18.766	12.058
Singapore	357	258	5.365	4.447
Japan	...	...	183	194
Australia	...	18	245	252
Elsewhere	...	...	169	...
Total ...	3.122	2.046	33.162	31.166

1921.
EXPORTS OF RUBBER FROM JAVA,
(in tons of 1,000 kilos.)

Destination.	January.	
	1920.	1921
Holland	319	753
England	148	1.035
Germany	...	47
U. S. of America	1.044	510
Singapore	391	359
Australia	...	138
Total ...	1.902	2.842

OBITUARY.

A. M. KINLOCH.

We regret very much to record the death of Mr. A. M. Kinloch who has been killed by a wild boar while out shooting near Kotagiri. The late Mr. Kinloch was very well known in the Nilgiris, especially at Kotagiri, where for some years he owned and worked Kengerri. Latterly he was Superintendent of Palagapandy in the Nelliampathis. He was the son of the late General Alexander Kinloch of Logie, Scotland, himself a well known shikari, and first came to the Nilgiris about 1895.

Mr. Kinloch may be said to have represented all that was best in the planting type. An ardent shikari for many years, he was indeed the true sportsman, and one who knew him well emphasises particularly the large-hearted unselfishness of his sportsmanship. To his widow, his daughter and his son, A. P. Kinloch we can only offer the poor consolation of our very deep sympathy, in him they have lost more than words can possibly express. His many friends will long mourn his loss, and the memory of this gallant gentleman will be cherished in South India long after we of this generation shall also have joined the great majority. *Vale.*

NOTES AND NEWS.

The Inter-District Tennis Tournament.

At Ooty on Saturday last the Nilgiris beat the Wynaad. The following are the scores :—

DOUBLES.

Porter & B. A. Marden beat Eyre and Howe.
6—1, 7—5.

SINGLES.

Marden beat Eyre.
7—5; 5—7; 6—4.
Porter beat Howe.
'Score not returned.'

The Nilgiris now have to play the U. P. A. S. I. Team in the Second Round.

The match High Range *versus* Shevaroys has been definitely fixed for 14th May, and will be played at Coimbatore.

Destructive Insects and Pests Act.

The following Notification has been issued by the Government of India in the Department of Revenue and Agriculture :—

In exercise of the powers conferred by sub-section (1) of section 3 of the Destructive Insects and Pests Act, 1914 (II of 1914), the Governor-General in Council is pleased to direct that the following further amendments shall be made in the rules published with the notification of the Government of India in the Department of Revenue and Agriculture, No. 13-C., dated the 7th November, 1917, namely:—

1. In rule 5 of the said rules, for the words "*Fomes semitostus* and *Sphœrostilbe repens*" the words "*Fomes semitostus Sphœrostilbe repens* and *Fusicladium macrosporum*" shall be substituted.
2. In rules 7 and 9 of the said rules, after the word "Coffee" the words "and Hevea rubber" shall be inserted.

Coffee Prices.

Messrs. Peirce Leslie & Co. write that the local market has been very dull, and little business was done. Even at Rs. 50 in bags buyers are indifferent, but this state of the market is expected to be only temporary.

The latest advice from home is dated 9th April when the "Produce Markets Review," stated that

> "Costa Rica Coffees have been sold at higher prices, as advices have been received that over half the season's crop is now sold and that the remainder contains a large proportion of second grade qualities. East India growths are disappointing, and good quality can command a high price. There is still a shortage of fine Nairobis. The demand for quality is very apparent and all low grade Coffees are increasingly difficult of sale."

Spices.

There has been a better demand for white pepper, and 8¼d. and 7¾d. were quoted in mail week for Muntok and Singapore, respectively. Black pepper continued to move slowly, but values are already so low that further reductions are unlikely, except in the case of possible forced sale. Prices on April 11th were characterized as steady, quiet. Fair Black Singapore Spot, 3¾d. April—June 3¾d. Alleppey 4¼d., Tellicherry 4½d.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" COFFEE.

(BY CABLE.)

LONDON, DATED 6TH MAY, 1921.

111s. per cwt. Market Steady.

THE PRODUCTION OF TEA IN INDIA.

We have received the Report on the Production of Tea in India in the Calendar year 1919 from the Department of Statistics, India. It is a great pity that these statistics cannot be issued earlier, as in considering the figures of a period after so long a lapse as eighteen months one is apt to judge them in the light of current conditions, forgetting the changes that may have taken place in these days of rapidity of movement and ever changing aspect of most industries. This thought cannot alter, however, the actual facts presented by these statistics, and if we avoid for the moment any deductions therefrom, the figures remain an interesting commentary on this very important branch of Agriculture in India. The report under review is the twenty-fifth of its kind, and follows the stereotyped form, dealing with the main features of the year, and including the usual statistical tables.

The area under tea would appear to have increased by a matter of 2 per cent over that returned in the year 1918, and was 691,800 acres. The area opened was 18 000 acres, and the area abandoned 6,100 acres, so that the net increase amounted to 11,900 acres. These figures, we are told, were obtained mainly from planters, and, as on previous occasions, the number of non-reporting gardens was negligible in other districts, but in Southern India amounted to nearly nine per cent. The actual figures of estates which made no returns are:—

	1918.	1919.
Bengal ...	2 out of 305.	2 out of 317.
Assam ...	None out of 814.	None out of 851.
S. India ...	21 out of 329.	28 out of 324.

It has to be remembered that estimates have to be made in respect of these non-reporting gardens, and it is an immense pity, as well as being derogatory to our reputation, that so many South Indian properties should have failed to send in returns. We have laboured this point so often in these pages that we are at last obliged most reluctantly to come to the conclusion that there is something in the psychology of a percentage of South Indian planters against which, on this question of statistics, it is hopeless to contend. It is a simple fact that statistics will never be got out of them by any means but legislation, and that's that.

The average production of tea per acre varies greatly in the different districts. The highest figure returned is that for Lakhimpur, which is shown as 762 lbs. per acre. The average production in the whole of India (excluding Burma) was 588 lbs. per acre plucked, as against 609 lbs in the previous year. These figures may be compared with those of the districts in which we are interested, viz.—

Madura ...	... 625 lbs.	per acre.
Travancore	... 579	do.
Malabar	... 404	do.
Coimbatore	... 370	do.
Nilgiris	... 349	do.
Tinnevelly	... 25	do.

The total production was 376,917,000 lbs. including green tea, but excluding Burma tea, and these figures are a reduction on the 1918 total of about 3·4 million lbs., or 1%. This is the first year in the period 1910-1919 that the production has shown any decrease, and in view of the increase in acreage it needs some explanation. The report draws attention to the number of non-reporting gardens; the estimates for these might have some influence, and it is stated further that the figures are understated, as they do not correspond to the increased area. Of the above total, S. India is credited with a production in 1919 of 34 million lbs.

In these days we are more than ordinarily interested in what our neighbours are doing. The figures compared with Ceylon, etc. are for the fiscal year, not the productive year.

	1918-1919. (In 1,000 lbs.)	1919-1920. (in 1,000 lbs.)
India	326,646	382,034
	1918.	1919.
Ceylon	180,818	208,561
China—		
(Black and green) ...	43,423	71,801
Brick tablet and dust ...	10,446	20,182

The official figures for Java are 1917—80½ millions, 1918—61 millions, 1919—112 millions

The report goes on to deal with sales and prices, value of chests, and machinery, freights, labour, etc., and is altogether a most interesting summary, on which we might be tempted heartily to congratulate the Department of Statistics if only we could swallow the dates. The year ended 31st December 1919. The report is dated 13th October, 1920, and is finally published in May, 1921. A little speeding up would be all to the good.

In conclusion, we will repeat the final paragraph of the report, with the reminder already mentioned that it was probably written in, and certainly deals with, early 1920.

It reads:—" The present position of the tea industry is anything but satisfactory. Stocks in all consuming countries are heavy, and there is a plethora of undesirable common sorts. The large balance of last year's crop remaining unsold, at a time when the new crop is coming into market, is a disturbing influence. Looking to the immediate future, Russia may be counted out. The anticipated demand from the continent (Europe) has so far proved an illusion, and for the present the industry can only look for the development of increased demand from India, America, Canada, and the Colonies. The industry has also suffered through exchange difficulties, and until there is some prospect of a stable exchange, business is bound to be increasingly difficult. On the whole, the prospects of the industry appear to be decidedly gloomy."

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

COIMBATORE,

SECRETARY'S REPORT No. 18. 11th May, 1921.

1. VANIYAR-MUNJAVADI ROAD.—In continuation of Item 2 of Report No. 15, the Shevaroy Planters' Association have written to say that they do not see their way to make a contribution towards the construction of this road as suggested by the Collector of Salem, and, as it would benefit non-members quite as much as members of that Association, they regret that they have to ask the U. P. A. S. I. to drop the matter.

2. RUBBER MYCOLOGIST.—The Director of Agriculture has notified the Secretary that he received a cable from Mr. Ashplant to say that, as his boat was delayed, he will not be arriving until the 13th instant. In this connection the Executive Committee have decided that the question of engaging clerical and menial staff for Mr. Ashplant will be arranged after his arrival.

3. HOME DOCK CHARGES.—Under instructions from the Executive Committee, a lot of figures relating to the heavy dock and landing charges in London have been collected and summarised. The Secretary has written to the South Indian Association in London, and asked them to take the matter up, if possible in conjunction with the Rubber Growers' Association and the Indian Tea Association in London.

4. EXPORT DUTY ON TEA.—The Government of Madras have forwarded the following extract from a letter from the Government of India, Department of Commerce, to the Secretary, Indian Tea Association:—

> "Regarding the request made by the Indian Tea Association that the Export Duty of Rs. 1-8 per 100 lbs. of Tea should be abolished, your Association will readily understand that the Government of India could not make any pronouncement in anticipation of their Budget proposals for the coming year."
>
> "I am further to express regret that, as has already been explained in the debate of the 18th March in the Legislative Assembly, the financial situation made it impossible for the Government of India to propose to the Legislative Assembly the abolition of the export duty on Tea. The Government of India, however, recognise that, apart from the consideration advanced in your letters, the whole question of export taxes requires careful consideration, and they have no doubt that they will be specially examined by the Fiscal Committee, which it is hoped will assemble in India early next cold weather. I am to suggest that your Association should prepare a Memorandum for the Committee."

(Signed) C. H. BROCK,
Acting Secretary.

INDIAN TEA ASSOCIATION.

ABSTRACT OF PROCEEDINGS OF A MEETING OF THE GENERAL COMMITTEE, HELD AT CALCUTTA ON 26TH APRIL, 1921.

CORRESPONDENCE WITH THE INDIAN TEA ASSOCIATION (LONDON).—Letters, dated 31st March and 7th April from the Indian Tea Association (London) were before the Committee. The principal subject dealt with was—

Restriction of crop.—In the proceedings of 1st March last, figures received from the London Association were quoted showing the probable restriction in production this year on the basis of the returns so far submitted. In the letter of 7th April it was stated that further replies had been received, giving the following particulars :—

		lbs.
Average crops 1915—1919, inclusive	...	16,126,765
Estimated crop for 1921 ...	...	13,439,325

Taking into account the figures previously quoted, the position was as follows :—

		lbs.
Average crops 1915—1919, inclusive	...	213,968,622
Estimated crop for 1921 ...	...	182,420,840

The General Committee noted these figures with interest. They represented a reduction of, say, 14%, and this was very similar to the reduction indicated by the figures collected by them with regard to Indian controlled concerns.

REGULATION OF SHIPMENTS FROM INDIA.—The following telegram, dated 18th April, had been received in this connection from the Indian Tea Association (London) :—

> Stocks in London bonded warehouses larger than ever. Committee strongly recommend shipments during May from Calcutta and Chittagong be restricted to 20 million lbs.

The Committee had sent copies of this telegram to all members of the Association, with a recommendation that shipments should be restricted as requested by the London Association. In now discussing the question, the Committee expressed the view that shipments during May were hardly likely to reach 20 million lbs., although clearances during that month from Chittagong might be large, in consequence of the second April steamer having been put back till early May.

The question of the possible restriction of shipments of the 1921 crop was considered by the Committee. It will be remembered that efforts were made to secure the co-operation of the Liners Conference in regard to the regulation of the shipments of the 1920 crop, but that these were unsuccessful, the Conference being unable to accept the proposal that they should ration space with a view to restricting the quantities shipped from time to time. It was now suggested that the London Association should be asked to take the matter up again with the Conference in London, and it was agreed to send forward this suggestion to the Association there. On the other hand, the Committee's feeling was that, even without any such assistance from the Liners Conference, it was possible that the circumstances in London might lead to a certain amount of restriction in the matter of shipments. If sales were restricted there, shippers would find that nothing was to be gained by rushing home their teas. But it was, the Committee considered, a necessary corollary of any arrangement for restricting sales that private sales, during the period of such restriction, should be barred; otherwise any restriction in regard to teas exposed by auction would be incomplete and ineffectual. It was agreed, accordingly, to suggest to the London Association that an endeavour should be made to have an arrangement concluded under which, during any period of restriction of auctions, private sales should be disallowed.

POSITION OF THE INDUSTRY.—In the proceedings of last meeting, reference was made to a letter received from the Indian Planters' Agency Co., Ltd., making certain suggestions in this connection. It was arranged, as then stated, to send a copy of this letter to the Director-General of Commercial Intelligence, with a request that he should inform the Committee what steps, if any, had been taken, or were contemplated by Government with a view to the relief of the industry, as the result of the meeting held on 23rd November, 1920 which was attended by him and the Controller of Currency. Subsequent to the last meeting, and before action in this direction was taken, the Committee had received a letter, dated 14th April, from the Government of India, Department of Commerce. The letter was in the following terms:—

I am directed to express regret for the delay in replying to your letters Nos. 1548 and 1725, dated the 9th November and 11th December, 1920, respectively. The most important request made by the Indian Tea Association in these letters was the request that the export duty of Rs. 1-8-0 per 100 lbs. of tea should be abolished, and your Association will readily understand that the Government of India could not make any pronouncement in anticipation of their budget proposals for the coming year.

2. I am further to express regret that, as has already been explained in the debate of the 18th March in the Legislative Assembly, the financial situation made it impossible for the Government of India to propose to the Legislative Assembly the abolition of the export duty on tea. The Government of India, however, recognise that, apart from the considerations advanced in your letters, the whole question of export taxes requires careful consideration, and they have no doubt that they will be specially examined by the Fiscal Committee which it is hoped will assemble in India early next cold weather. I am to suggest that your Association should prepare a Memorandum for the Committee.

3. Turning to the other suggestions contained in your letters, I am to say that the Government of India have decided not to take any action on the proposals that rice prices in Assam should be controlled, and that the Cotton Cloth Act should be re-introduced in order that standard cloth may be provided for labourers on tea estates. The prices of rice and cloth have both dropped considerably in the last few months, and the Government of India think that it would be a mistake to try artificially to control the price of these articles. The proposal to control the price of rice would involve legislation, and even if this legislation were undertaken, it is very doubtful whether it would be possible to make the control price effective. The suggestions relating to the remission of land rents and the provision of employment by Government for surplus labour from the tea gardens, and the financing of small proprietary concerns, are all matters for the Government of Assam, and copies of the relevant papers were forwarded in December last to that Government for consideration. Similarly, the necessity of placing the tea industry on a favourable footing in connection with any trade treaty with Russia has been urged upon His Majesty's Government.

As regards the question of assistance to the Tea Cess Fund, I am to say that the Tea Association has already been informed by the Board of Industries that the Government of India will guarantee an over-draft by the Association of one lakh of rupees from the Imperial Bank of India.

The Committee now discussed this letter. They noted the various points dealt with. In regard to the export duty, they noted that the whole question of export taxes would be specially examined by the Fiscal Committee next cold weather, and they decided to take the opportunity of submitting a memorandum to that Committee, as suggested. With reference to the suggested control of rice prices in Assam, and the re-introduction of the Cotton Cloth Act, it was noted that Government had decided not to take any action in either case; in the circumstances, the Committee had hardly expected that action would be taken. The other particulars given in the letter were also noted, and the Committee assumed that information would be forthcoming in due course, as to the result of the Government of Assam's consideration of the questions referred to them.

It was decided that a copy of this letter should be sent to the Indian Planters' Agency Co., Ld., for information.

THE EXPORT DUTY ON TEA.—The Committee observed, in the *Assam Gazette* of 6th April, the proceedings of the Assam Legislative Council meeting held on 22nd March last. At this meeting Major H. B. Fox, M.L.C., moved a resolution requesting the Government of Assam to recommend strongly to the Governor-General in Council that the export duty on tea should be forthwith removed. The Committee had read the report with much interest, and they noted with satisfaction that the resolution had been carried unanimously, with one single exception.

In connection with the question of the export duty, the Committee decided to record and to send to Sir Frank Carter, C.I.E., C.B.E., M.L.A., an expression of the Association's appreciation of his efforts on behalf of the industry in connection with the resolution he moved in the Imperial Legislative Assembly on 18th March, urging the removal of the duty.

INDIAN HOMEWARD BILLS OF LADING.—In the proceedings of last meeting, reference was made to a letter issued by the Agents of the Clan Line, forwarding a revised form of bill of lading for homeward cargo from Calcutta and Chittagong. As then arranged, the Committee had addressed the Agents pointing out that, under the terms of the current agreement between them and shippers, any alterations in the form of bill of lading must be agreed on between the parties; and that, as the negotiations in connection with the framing of the agreement had been carried on in London, tea shippers were being recommended not to accept the revised form until the question of the adjustment of the form had been arranged between the owners of the Line and the Indian Tea Association (London). A letter, dated 19th April, had been received in reply from the Agents of the Clan Line noting that, pending receipt of advices from the owners of the Line, the old form of bill of lading would be kept in force. This letter was to be recorded.

INCOME TAX: LIABILITY OF TEA ESTATES.—In the unabridged proceedings of 7th December last, reference was made to correspondence with the Kangra Tea Association regarding action taken by the Government of Punjab towards the assessment of tea estates in the province to income tax. As then arranged, the Kangra Association were advised to recommend their members not to submit returns called for in this connection on the ground, *inter alia*, that assessment rules had still to be framed in accordance with the decision of the Calcutta High Court in the matter. In a letter from the Kangra Association, dated 12th April, it was stated that all members of the Association had been informed accordingly, and there was forwarded a letter received from one member stating that, previous to receipt of the Committee's letter, he had submitted a statement on the basis of the return called for, and that he had now been called on to pay the sum of Rs. 700 on account of income tax ; he stated that he was contesting the claim, but meantime asked information as to whether anything further had been settled.

The Committee decided to reply that the rules regarding assessment had not yet been framed by Government.

THE INTERNATIONAL LABOUR CONFERENCE.—This subject was last mentioned in the proceedings of 29th March, when reference was made to the arrangements under discussion for representatives of the industry to act as advisers to the employers' delegate to the Geneva Conference next October. Since that meeting the Committee have been in correspondence with the United Planters' Association of Southern India, in view of the latter having nominated the Secretary of the Association, Mr. H. Waddington, as an adviser. The Committee were not quite clear whether he was to proceed to Geneva, and they asked the Association whether this was the intention. They had now received a letter, dated 12th April, from the United Planters' Association, noting that Mr. Waddington would attend the Conference, if his nomination were accepted by Government, as he was proceeding home this year on furlough. The Committee noted this information.

RUBBER MANUFACTURE.

A few days ago a letter appeared in the correspondence columns of the "Times of Ceylon" alleging that Ceylon Companies are losing thousands of rupees owing to their inability to meet the requirements of the market in ribbed smoked sheet. Quantities of ribbed smoked sheet, the writer declared, have in recent sales fetched 35 to 38 cents, which might easily have sold for 50 cents if it had been properly manufactured, and 50 cents would have given a margin above cost of production, while 35 cents did not.

The correspondent further emphasised that orders from America and elsewhere could not be executed at all, because the required quality was not to be obtained, and, therefore, these orders had to go past Ceylon to the Straits.

Recently the tea market had been saved by reason of the greater care and attention paid to manufacture, and the writer of the letter expressed the opinion that it was time directors and shareholders in rubber companies realised that, to a lesser extent perhaps, similar good results would follow a "quality first" campaign in so far as rubber is concerned.

In this connection it is as well to remember the very strenuous steps which were taken in Ceylon to improve the quality of tea. Most of the large firms of Estate Agents sent tea experts to visit the estates under their control, and to discuss improved methods of tea-making with the Superintendents. This interchange of opinions had excellent results, and, the subject having been extensively discussed in the columns of the Press and elsewhere, the quality of tea manufactured in Ceylon rapidly improved. The effects of this improvement were magical, and the rapid rise in prices was very largely attributed to the superior quality of the tea.

A "Times of Ceylon" representative, to-day, made inquiries in the Fort as to the possibility of some similar action being taken to improve the quality of the ribbed smoked sheet now being turned out in this Colony. Every Colombo agent interviewed agreed that it was of the utmost importance at the present time that the greatest possible care should be taken to ensure that the smoked sheet manufactured should be of the finest quality. Now that there was a slump in rubber, buyers were able to pick and choose, and every Superintendent realised that only really high grade smoked sheet fetched a figure more than sufficient to cover the cost of production. The importance of exercising the greatest care in the field, the factory and the smoke house had been repeatedly impressed upon most Superintendents. Superintendents were fully aware of the vast importance of producing smoked sheet of a quality which would pass the standard, they knew perfectly well that never before have buyers on the local market been so very particular as to quality, they knew to their cost that the slightest defect brought the price down— not by one cent or possibly two cents per lb. as in the old days—but by five, ten, or fifteen cents. Rubber which falls short of standard quality fetches pence less than first grade rubber, and Superintendents were alive to the fact that they have a vital personal interest in keeping their rubber above standard quality.

They also knew that such minor matters as uniformity of colour, and even the definition of the diamond marking, now had an appreciable effect upon prices.

In regard to the suggestion which has been put forward that experts might be profitably sent to estates to discuss methods of manufacture with the Superintendents, it was pointed out that, whereas in the case of tea there are a hundred and one points which have to be very closely watched if the best results are to be obtained, in the case of rubber there are only a few simple rules which must be observed. It was very doubtful whether the advice which a rubber expert would be able to give would have the effect of materially improving the quality of the ribbed smoked sheet manufactured, and, moreover, estates could ill afford any additional experditure at the present time.

Those estates affiliated with the Rubber Growers' Association mostly had in their factories the instructions as to methods of dealing with latex, and of preparing crepe and smoke sheet, for the information of all concerned. These instructions, prepared by experts who knew what they were writing about, gave valuable information as to how to overcome many defects.

At the same time, one prominent Colombo estate agent expressed the opinion that it was much to be regretted that more energetic steps were not being taken to investigate the causes of such defects as "stretching rusty," the occurrence of white spots and of streaks of virgin rubber in otherwise perfectly smoked sheets. It would be of the utmost value to rubber growers if it could be ascertained why rubber so frequently turns mouldy after curing, and how this can be avoided.

It was also most desirable that investigations should be made with a view to ascertaining definitely whether it is better that the firing should be done from inside or outside the smoke house.

Far too little attention has been paid to investigation work of this kind. Perhaps "Quality First" could give the growers a few tips in this connection.

THE CEYLON LABOUR PROBLEM.

The views of the Ceylon Labour Commissioner, published by us on Saturday, will have given many people food for serious thought. The position in regard to labour at the present moment is an extremely critical one, complicated as it is by the shelved legislation. The situation is such that one false step might do incalculable harm to one of the most valuable assets of Ceylon's agricultural industries, namely, a cheap and plentiful supply of labour, while on the other hand it affords opportunities which, if rightly employed, might lead to the labour supply being placed on a permanently solid and satisfactory basis. The immediate steps required to be taken, according to the Labour Commissioner, are the restoration of the old rice ration on estates and the placing of the proper facts of the present position in Ceylon before the coolies on the Coast. Neither of these remedies, of course, go to the root of the labour problem; but they are nevertheless of importance. One of the greatest attractions Ceylon has always possessed for the South Indian Tamils is the rice ration. To the Indian cooly rice is a luxury, and there is no doubt that when the supply of this had, owing to circumstances beyond the control of the planters, to be interfered with and the ration cut down, or rice replaced by other less delectable grain, the popularity of Ceylon received a bad set-back on the Coast. The restoration of the full rice ration would do more than anything else to convince the Coast population that Ceylon is once more the El Dorado it used to be. As we have indicated, however, other measures which have a more permanent bearing on the future will have to be brought up for serious consideration without loss of time. One of these is the abolition of the penal clauses in the Ceylon Labour Laws. As the Ceylon Labour Commissioner pointed out, there will shortly be forces at work in India powerfully inimical to Ceylon's interests in the matter of labour, and a determined effort will be made to prevent emigration of labour from India altogether. Those who are interested in the retention of labour in India will eagerly seize upon any excuse that will help them in the promotion of their campaign. The case of Ceylon has up to the present been a very strong one, and it has been enormously strengthened by the results of the investigations recently made into the labour conditions in this country. The official Commission which toured this island reported very favourably to the Government of India, and their conclusions were unexpectedly confirmed by an enquirer whose *bona fides* and absence of bias in favour of the Ceylon employer nobody would dream for a moment of questioning. We refer to Mr. C. F. Andrews, who came to Ceylon at the request of a local body interested in the protection of the interests of labourers. He was afforded every opportunity of investigation, and he left the island not merely satisfied with the conditions under which Tamil labourers were working on estates, but almost enthusiastic in his praise of them. Ceylon's armour is therefore impervious to attack except for two weak joints, one being the penal clauses. As to the effect of the abolition of these, opinion may differ, but we believe that there is now a consensus of opinion amongst the leaders of planting opinion, first, that in view of the circumstances already mentioned, the retention of these is not for a moment to the weighed against the advantages of their abolition, and second, that whether we wish or not they will have to go. The second weak spot is the advance system. Unfortunately, just when everybody concerned had become reconciled to the abolition of the tundu, complications have arisen in the matter of legislation which have caused it to be postponed indefinitely. We trust Government and the representatives of the Planters' Association will lose no time in putting their heads together, with a view to the immediate drafting of an Ordinance embodying the most urgent legislation required. If this is not done, we tremble to think of the results when the labour pinch comes, as it will before many months are past.—*Times of Ceylon.*

Reduction and Retrenchment from the Entomological point of view.

One year ago the writer committed himself to the statement that this Scientific Department "exists for no other purpose than that of co-operating with those concerned in production with a view to maintaining the quantity and quality of the product at as high a level as possible."*

Nothing can emphasize the rashness of committing oneself to anything more than the fact that this same Department now finds itself considering ways and means of reducing output—a form of activity quite foreign to precedent, and one which necessitates the adoption of an entirely opposite policy. All must deplore the necessity for such a *volte face*, but this fact should not prevent us from giving the matter even more careful consideration than has been given to increase of production in the past. It is much easier to decrease than to increase production—but—we all know our Brahmaputra ; and while we know that progress is more rapid down stream than up let us not forget that the difficulties of navigation between the shoals are greater.

One of the possible effects of decreased expenditure on a tea estate which must never be lost sight of is that which it will have on the insect enemies of the plant. The fact that where work has been best in the past our insect enemies are least troublesome requires no advertisement, and makes it obvious that if retrenchment be carried out carelessly damage is bound to accrue. On the other hand, at a time when a slight loss of crop is a matter of little moment, the planter is placed in a position whereby, with the exercise of a little care, he might be able to exert a considerable influence over his insect enemies which will be of benefit later on.

There is a tendency, at a time like this, to contemplate the intervention of an insect pest with comparative equanimity—the man whose garden is not attacked may even regard it as providential—but it would be deplorable if, when the good times come later, it should be found that our insect enemies have such an ascendancy as to prevent our taking full advantage of the return to better conditions.

A difficulty besets one at the outset. Will the season 1921 be favourable or unfavourable for tea ? Should it be favourable, well and good, but an unfavourable season, coming at a time when a policy calculated to reduce crop has been pursued, might render it impossible to make even the reduced estimate. There is admittedly a risk, but while it might, at a certain stage of the game, be advisable to exchange pawns, it may be laid down that as a general rule it is more profitable to exchange a bishop for a queen. Moreover, if it has been decided to pluck certain areas very sparingly, there is always the possibility of taking a little more from them later to make up a deficiency.

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* Indian Tea Association, Scientific Department Quarterly Journal, 1919, page 56.

In adjusting one's policy of retrenchment and decreased production to meet the requirements of the entomological point of view as far as possible, one fundamental fact should be kept in mind. In its natural state tea can, and does, compete successfully with its insect enemies, and achieves the object of its existence, which is the production of seed. Even our arch enemy, the tea mosquito, has no terrors for the owner of a seed-bari. By stimulating the bush to produce leaf unnatural conditions have been brought about which reduce the plant's power of resistance, and the more leaf the bush is stimulated to produce, the greater the departure from natural conditions and the less its power of resistance to attack by pests and blights. The writer was recently shown a section of tea, on a garden in the Duars which suffers badly from mosquito blight, which, in a year of comparative freedom from blight, is said to have given 10 maunds of pucca tea per acre. The bushes were old, and for the most part poor, China bushes. There must have been 30 per cent. of vacancies, and at least 30 per cent. of the bushes were nominal vacancies.* Such tea, in a district like the Jorhat district, where mosquito blight, though present, is not a factor in production, would give, at the utmost, 5 maunds in the most favourable year. Cases of this description are of frequent occurrence, and there is more than one instance of a garden which, pursuing a more or less old-fashioned policy, maintains a steady average outturn and remains free from mosquito blight, while neighbouring gardens, more up-to-date, and producing very high outturns in some years, in other years suffer very seriously from attack by the pest.

Now it has been found in America in the case of fruit trees that trees which are allowed to remain in a state of nature for a year or two will become almost free from certain scale insects which attack them severely after they have been cultivated for a few years. Trees so left can be brought back into cultivation, and made to give heavy crops for four or five years, when the scale insects will again gain the upper hand, and the trees are left again. Such a policy, modified to suit the circumstances, might be pursued with some advantage in the case of estates which suffer badly from mosquito blight. Badly affected areas might be left unpruned, unplucked, and uncultivated, either wholly or in part. The area should, however, be by no means abandoned. It might probably be necessary to pluck the centres of the bushes lightly, to prevent them from growing up at the expense of the sides. It would certainly be advisable to sickle the jungle at intervals, to admit light and air to the bushes and prevent the sides from being smothered. Such a rest would do much to increase the powers of resistance of the bushes to attack by sucking insects.

A further suggestion one would like to see carried out in the case of a mosquito-blighted area is to burn the prunings, not on the road side, but between the lines of tea. One has heard of this being done with success in the past, but since it could not be explained why the insects should not afterwards get into the area from round about, and since the treatment appeared to be somewhat drastic, the idea made small appeal. We have recently found, however, that land on which fires have been lighted before being planted with tea gives extraordinarily vigorous plants. This seems to indicate that the partial sterilisation of the soil produced by the heat of the fire is beneficial, and this may very probably have been the cause of the successful results referred to above. Under present conditions, also, the objection to the burning of the bushes disappears, since a slight loss of crop is of no moment, and tea generally recovers remarkably well from fire.

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* *i.e.*, unproductive bushes.

Another practice which might be discontinued is the reprehensible one of taking off the young shoots and buds "before the mosquito gets them." The bushes may or may not come through if left, but they at least get a rest and chance, of which they very often avail themselves, while if young shoots are being removed by the pluckers as well as being nipped by the insects the bushes get no rest and no chance.

The above suggestions will probably commend themselves little, if at all, to many. They are, of course, largely experimental, and perhaps, in the case of the first two at any rate, only the existence of an abnormal state of affairs like the present would justify their adoption. It does seem, however, that with a market such as the present one, on which only the best teas command a sale, it is false policy to continue to make as much tea as possible early in the season, before mosquito gets it, with the accompanying certainty of making no autumnal teas.

Before leaving this subject one danger of leaving part of the area unpruned, unplucked, and uncultivated must be pointed out. That danger is the advantage which will thereby be given to pests over which a considerable control is exercised in the ordinary way by the operations of pruning and cultivation. Pests such as borers, looper, faggot and bag-worms, in fact all caterpillar pests, and termites will be given every encouragement by such conditions. They will not kill the bushes by any means but unless they are watched they might very well undo much that is the result of careful work in the past. In practice, therefore, it will probably not always be possible to avoid cultivation altogether, or even a certain amount of pruning. Should looper make its appearance, for instance, it would be advisable to put in a hoe after the caterpillars had disappeared, as otherwise the pupae would be left undisturbed in the ground to attain maturity, and the adults would be enabled to infest other parts of the area. Borers, likewise, would have to be cut out, or they would increase in numbers and spread to other parts. Termites would not do much damage in the rains, but a thully in the cold weather, and again at the end of the rains, would probably be advisable. In such matters as this a garden manager would have to exercise his own discretion.

Mention of termites draws attention to a common practice in termite-infested areas. It is generally recognised that it is advisable to cut out termite-ridden branches, but branches, which are not yet so badly damaged as not to give leaf are often left with the idea of getting a little more leaf from them before removing them. This means that the insects are left for another season in a position whence they can readily extend their depredations to the base of neighbouring sound branches, and by gradually interfering with the proper flow of sap into those branches, render them moribund, and in a fit state for attack. At such a time as this it would seem advisable to remove such branches when pruning. There will then be a certain loss of crop during this period of crop reduction, but in the meantime new branches will be forming against the coming period of full production.

The above suggestions for taking advantage of the needs of the moment and exercising means of insect control which would not be practised in normal times are not, of course, of general application, but are suited to a few particular cases. It is more than probable that on the majority of gardens the necessary reduction in crop will be readily effected by a system of finer plucking, with its accompanying advantage of the production of a higher proportion of better grade teas, and that reduction in expenditure, if brought into operation, will be general over the estate, and result in cheaper pruning and cultivation, and less manuring. This being so, it behoves one to consider the probable results of such a policy in so far as the incidence of insect pests is concerned, and the possibility of ameliorating any harmful effects which may arise.

Finer plucking may be carried out in two ways. Finer leaf may be plucked as soon as ready, or the finer portions of more mature leaf may be plucked, leaving the remainder on the bush. The former method will take more out of the bush, the latter method will take less out of the bush. Since the former method results in forcing the bush to a greater extent than the later, it may be expected, as is indeed known from experience, that pests like red spider, tea mosquito, and green fly will, should they occur, have a greater effect on the plant. From entomological, as well as general reasons, therefore, the latter method is to be advocated.

Cheaper pruning will, of course, tend to bad workmanship. Bad workmanship means snags, followed by bark-eating and other borers, termites, etc. Bad pruning is ordinarily least harmful in high-pruned tea. Any saving in expenditure should therefore be made on the high-pruned sections, and not on the low and medium-pruned sections. It is of the utmost importance, when heavy-pruning tea, to cut out bad wood as far as possible. Apart from the general truth that unsound branches can never be expected to give thoroughly healthy shoots, bad wood is always attacked by some insect or other, water collects in it, and fungi breed on it. Not only so, but the insects and fungi present on it are in a position to sap the vitality from neighbouring branches. It may be, that on some estates where a policy of renovation is being followed, it will be decided that at a time like this a larger area may be cut down than was originally intended. It should not be forgotten that medium and heavy pruning requires a good deal of supervision, and that it is much harder on the cooly than light pruning. The larger the area being cut down, the greater the chance of bad work, and of the work being overlooked, more especially at a time when economy is a primary consideration, and there may be a tendency to make money go further than usual.

One would lay considerable emphasis on this question of pruning. It is not difficult to foresee a distinct increase in the depredations of borers, bark-eaters, and termites unless care be exercised. There is first of all the tendency to economise. Then comes the tendency to take advantage of the present situation and cut down a larger area. These two propositions are hardly compatible. If expenditure on pruning must be kept down, it should be done by cutting down a smaller area and still doing it well, and not by endeavouring to prune at a smaller cost per acre. The personal equation will come in to this matter, too. In former times the desire to obtion as large a crop as possible was an inducement to get the pruning done in such a way as to make sure of giving the bush every chance to yield. This inducement has now by no means the force it had, for, be as conscientious as one will, it is difficult to give the same care to things which do not matter very much as to those that do, and with coolies in their present unsettled state it is not always easy to press matters.

Economy in cultivation is not likely to do so much harm as economy in pruning, but reducing the number of hoes, or neglecting to fork round the bushes, will undoubtedly result in an increase in the number of those insects which pass some part of their life history in the ground. Forking and thullying, more especially in termite-infested areas, should be continued as far as possible. The draught of 1919 gave termites an opportunity of establishing themselves very firmly in the tea, an opportunity of which they appear to have taken full advantage, and if forking or thullying be dropped now the results might be serious. By forking and thullying, too, even though they are not collected, the chrysalids of such pests as the looper, sandwich caterpillar, etc., are destroyed in large numbers.

One would rather, speaking strictly as an entomologist, see two rounds of hoeing missed than one round of thullying or forking, not only because of the nature of the operation, but because of the time of year at which it is done. In places where looper and sandwich caterpillar are of importance as pests, it will be more important than ever, with a reduction in the number of light hoes put in during the season, to keep a constant observation in the behaviour of these insects and arrange, as far as possible, to put in the hoe at a time when the insect are found to have left the bushes and gone into the ground. One thing more, outside the province of the Entomologist, but within that of the Deputy Chief Scientific Officer. This Department has for some time advocated that the hoeing of heavy soils in the rain should be avoided as far as possible. What an opportunity for an intelligent application of the true principles of economy!

(*To be continued.*)

NOTES AND NEWS.

Rubber Prices.

" Macson " in the " India Rubber Journal " of 9th April says :—

"Our market has had a nasty setback. Before the coal strike occurred there was considerable hope that we could tide over our own adverse conditions under which the market was struggling. Prices had been kept steady, and careful handling had put a very good face upon matters, but this hope has been withdrawn, and the abnormal position of our market is left unrelieved.

Efforts will be made to lift values again when the coal trouble settles, but time has been lost, and manufacturing demand deferred, thereby further handicapping a possible recovery.

Values in New York and Singapore are very low—spot sheets 15½ cents and 8¾d. respectively."

Quotations as late as April 11th were, standard crepe spot and April sold at 11d. and buyers, May 11¼d., June 11½d., July—September 1s. 0¼d., July-December quoted 1s. 1d., October-December 1s.1¾d. Smoked Ribbed sheet spot and April sold at 10d., and buyers, May 10¼d., June 10½d., July-December 1s. Fine Hard Para Spot quoted at 10¾d.per lb. Stocks in Mail week, 65,000 tons.

Forty-three Million Tires?

The persistent pessimist, intoning jeremiads on the outlook of trade generally, will find but little material for lamentations in the recent national review of the automobile industry. According to the official figures compiled by the American Automobile Association, the motor car registrations for 1920 reached the surprising total of 9,180,316. Nor does this total include a twelfth month in either California or New York. With those figures added, the total might well reach the figure of 9,300,000. Evidently automobile buyers did not worry much about adverse business conditions last year, when they thus overtopped 1919's total of 7,065,446. Of the whole number registered, approximately 8,234,490 were classed as passenger cars, 945,826 as commercial and 271,230 in addition as motor cycles.

To the rubber trade, such a showing has considerable interest. It means a large item of business. If 1921 should witness a similar 23 per cent increase, this year's output of cars would be 2,111,472, or a possible total registry of 11,411,472 cars for the year. Assuming that four tires and a spare would be needed for initial equipment for each car, a total of 10,557,360 tires would have to be produced for the new automobiles. An average of three tires apiece; it is figured, would be required for the 9,180,316 cars already in use, thus making a total estimated demand for tires in 1921 in the United States of approximately 38,000,000, not to mention even more tubes.

Despite the always conflicting reports, trade conditions abroad are slowly but surely returning to normal; and it is reasonable to expect that enterprising American tire manufacturers will follow up closely every advantage gained by them during and since the war, and press the sales of perhaps 5,000,000 more tires beyond the seas. Forecasts as to tire sales and manufacture can have as large a percentage of error as those in any other industrial line, but it is fair to claim that the foregoing figures are quite conservative, and that they afford a fair index of the trend of trade in automobile tires.—*India Rubber World.*

Brazilian Exports and Coffee.

Statistics of the foreign commerce of Santos, presented by "Wileman's Brazilian Review," illustrate the important effect upon the external trade of Brazil of the fall in coffee value and the decline in demand for the berry. The exports (f. o. b. value) of Santos in 1919 and 1920 are given as follows:—

			Increase or Decrease.	
	1920.	1919.	Value,	%.
£ sterling ...	53,250,298	64,457,871	— 11,207,573	17·4
Contos currency ...	860,476	1,087,487	— 227,011	20·9

Thus, the year 1920 saw a decline of over 17 per cent. in sterling value of exports. How far coffee was responsible for the decline is shown by the following details of the principal exports:—

	1919.	1920.	Inc. or Dec.
Cotton, raw ...	$17,655,408	$38,689,192	+$21,033,784
Rice ...	$7,036,399	$50,893,622	+$52,857,223
Lard ...	$13,139,376	$5,552,549	—$ 7,586,827
Coffee ...	$946,576,671	$671,363,457	—$275,213,214
Frozen meat ...	$35,606,480	$36,532,942	+$926,462
Beans ...	$17,094,634	$7,584,637	—$9,509,997
Banana ...	$1,796,061	$2,304,434	+$508,418

In quantity, the exports from Santos of coffee in 1920 were about 1,000,000 bags below the exports of 1919, the figures being 8,480,887 bags, against 9,426,335 bags. Among the customers for Santos exports the United States is easily first, France second, and Italy third. The balance of trade in 1919 and 1920 shows the following comparison :

	1920.	1919.	Increase or Decrease. Value.	Increase or Decrease. %.
Exports ...	£53,250,298	£64,457,871	—£11,207,573	17·4
Imports ...	36,838,795	22,297,985	+ 14,540,810	65·2
Surplus exports...	£16,411,503	£42,159,886	—£25,748,383	—
Ditto % ...	44·5	189·1		

The year 1920 brought about a substantial decline in the very large export surplus of the previous year.

STOCK MARKET.

Tea Share Values.

The following figures, compiled by Mr. George Seton, of Winchester House, E. C., show the variation in value of the ordinary share capital of thirty representative Indian Tea Companies. Due allowance has been made for recent changes in the issued capitals of some of the companies :—

	£.
Face Value of selected shares ...	5,000,000
Value at July, 1914 ...	7,500,000
Highest Value, autumn, 1919 ...	12,500,000
Value, June, 1920 ...	9,700,060
Value, September, 1920 ...	8,000,000
Value, early December, 1920 ...	8,000,000
Value, early January, 1921 ...	6,500,000

It will be seen that there has been a moderate recovery, since the turn of the year, from the very low level to which share prices dropped at the worst moment of the financial stringency. This has been helped by the improved tone now ruling in the Mincing Lane market. This last feature seems to be occasioned, first, by the realisation that supplies coming forward are less than anticipated, and that home consumption has been greatly augmented since prices of common and medium class tea fell so low as they were in the late autumn. At time of writing there is a strong demand for most of the leading shares, which it is found most difficult to meet owing to the firm attitude of holders.

Inter-District Tennis.

The Match High Range *versus* Shevaroys has been postponed, and will be played at Coimbatore on Saturday, 28th May. The Match U. P. A. S. I. *versus* Nilgiris will be decided at Coimbatore on Saturday, 14th May.

The Factory Act.

We have received a copy of the New Act, which is published in book form, side by side with the old Act of 1911 and an explanation of the clauses. We hope to deal with this matter at length next week, but meanwhile we earnestly advise all planters to get a copy of the book from the Secretary, Indian Tea Association, Calcutta, Price Re. 1-4.

The Auxiliary Forces.

According to the proceedings of the Associated Chambers of Commerce of India and Ceylon at their Annual General Meeting, the Hon'ble Mr. Holberton said that in Burma. . . . "they had absolutely scrapped all the I. D. F. Officers. All commissions have been handed in, and no single man has taken up a commission again. Every officer in the new corps is a man who has seen war service." We wonder how many corps in South India could make this claim.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" COFFEE.

(BY CABLE.)

LONDON, DATED 13TH MAY, 1921.
111s. per cwt. Market Steady.

EDITORIAL NOTES.

The Late Mr. Fitzgerald.

We regret very much to record the death at Vizianagaram on 16th inst. of Mr. A. G. Fitzgerald. Mr. Fitzgerald joined the U. P. A. S. I. Labour Department in February last, and was making excellent progress in the recruitment of Ganjam labour. His death was entirely unexpected, and we have at present no news regarding the circumstances under which he died.

Ourselves.

The duty of proceeding to Vizianagaram, to take over the late Mr. Fitzgerald's affairs devolving on the Editor, he apologises for the absence of his usual leader this week.

The Rubber Mycologist.

Mr. Ashplant has arrived at Madras, and is expected at Coimbatore on the 20th inst. We understand he will put in a period of preparation at the Agricultural College, Coimbatore, before proceeding to take up his duties at Mundakayam.

Inter-District Tennis.

The Nilgiris beat the U. P. A. S. I. at Coimbatore on Saturday last, the scores being:—

B. A. Marden and O. W. Marden	beat 6—1; 6—4.	E. Vincent and Anstead.
O. W. Marden	beat 6—2; 6—4.	Anstead.

The Nilgiris now play the winners of the Peermade-Mundakayam Match.

The Match High Range *versus* Shevaroys will be played at Coimbatore on Saturday, 28th May.

U. P. A. S. I. Gazette.

Mr. J. B. Cook has been elected Chairman, and Mr. J. R. N. Pryde, Honorary Secretary of the South Travancore Planters' Association. These two gentlemen also will represent the Association on the U. P. A. S. I. General Committee.

Messrs. E. C. Sylvester and A. R. St. George hold the same offices, respectively and collectively, for the Central Travancore Planters' Association.

Ceylon Tea.

Figures of Ceylon Tea exported by rail *via* Tallaimannar to the following stations in South India:—

	Lbs.
Cannanore	420
Badagara	16.640
Ayyampet	1.433
Madura	325
Ramnaad	449
Tanjore	750
Total...	20,017

These figures are taken from the "Ceylon Chamber of Commerce' Weekly Price Current, dated 18th April, 1921, 25th April, 1921, and 2nd May, 1921.

Coffee Prices.

Messrs. Leslie & Anderson wrote in Mail week:—

"We are glad to report a strong market at auctions this week, prices of East India Coffee being several shillings per cwt higher, according to quality. We attribute the change of sentiment and advance in prices to a belief that the quantities of Costa Rica and East India Coffee expected to reach London are likely to be considerably less than was at first estimated. The largest advance in prices is in Fine Costa Ricas. The outturn in quality of Mysores has, with a few exceptions, been very disappointing this season. Coorgs, on the other hand, have shown better quality, with the result that the Home Trade has been buying Coorgs this week. There has also been a good enquiry from the Export Trade Buyers and, should this demand continue, we hope prices may be maintained.

"Shipments dealt with at auctions this week are chiefly those ex. s. s. "CLAN STUART".

Messrs. Peirce Leslie & Co., Coimbatore write:— "The season on the coast is closing due to the approach of the monsoon, and there is very little good coffee left there. We have experienced a lull in local demand for the past 3 weeks, and buyers are still holding back. The close of the shipping season and the approach of the annual auction is causing this, we consider. The auctions in Coimbatore will take place about the middle of June this year. London Market continues firm, due to continental demand."

Stagbrook Rubber and Tea Estates.

The net loss incurred on the year ended, December 31st last, after writing £500 to depreciation and charging all development expenditure on the immature area to current account, amounts to £25,511. After bringing forward a balance of £6,653 from last account and crediting the sum of £2,158 refund of income tax under the Bousted decision, and £16,708, being the estimated amount to be reclaimed for overpaid E. P. D. (less the amount due in respect of 1918) a balance of £8 remains to be carried forward. The unsatisfactory result is attributed to heavy falls in the price of both tea and rubber, loss on foodstuffs and the high rate of exchange. During the year 247,523 lbs. were harvested, realising an average price of 6·42d. net per lb. at a cost of 1s. 4·15d. per lb. f.o.b. The low selling price is due to the fact that the greater part of the crop was harvested towards the end of the year, since when prices have fallen considerably. The tea was produced at a cost of 11·45d. per lb. f.o.b. and realized an average price of 6·88d. net.

Rani Travancore Rubber.

The net loss on the year ended December 31st last is shown as £5,662, which, deducted from the balance brought forward, leaves £13,220 available for distribution. It is proposed to pay a dividend of 2½ per cent. on the year, less tax, carrying forward £6,345. The sum recoverable in connection with the E. P. D. is not included in the balance. The capital expenditure was £9,587, representing the cost of planting rubber on the Shaliacany and Perinaad estates, and the construction of a manager's bungalow and other buildings. The amount of rubber harvested during the year was 793,597 lbs., which realised a net average price of 1s. 2·97d. per lb. at a cost f. o. b. Colombo of 1s. 3·07d. per lb. Owing to the higher rate of exchange, the cost of production for 1920 compares most unfavourably with that of the previous year. It is expected that a large sum will be recovered in repayment of E. P. D.

Poonmudi Tea and Rubber.

After providing for general expenses, £2,142 for loss on exchange, and £409 for depreciation, there is a loss to be carried to appropriation account of £22,083 in respect of the year ended December 31st last. After allowing for the balance of £4,496 from the previous season, and crediting the account with £10,000 transferred from reserve account, and £7,316 in respect of excess profits duty refunded for 1917-18, and the amount claimed to be refunded for 1920, there remains a debit balance to be carried forward to next year of £270. The crops amounted to 756,541 lbs. tea (against 755,612 lbs. last year), which was produced at a cost of 8·52d. f.o.b. and realised 4·77d. net per lb., and 53,162 lbs. rubber (against 66,978 lbs. last year) which was produced at a cost of 1s. 3·01d. f.o.b., and realised 6·53d. net per lb. The markets for both tea and rubber have been entirely adverse, and this, combined with the high rate of exchange, brought about the unfortunate results of the year's trading. The increase in the rate of exchange in itself meant an increased expenditure of £ 6,318 in providing for the estate's working, as compared with the cost of the same number of rupees last year. The estimate for the current season is for a crop of 600,000 lbs. tea and 50,000 lbs. rubber. The crops have been restricted in accordance with the recommendation of the South Indian Association in London and the Rubber Growers' Association. The board have entered into a contract for the sale of the whole crop of tea for the current year, at a price which should fully cover the cost of production, and have further arranged an exchange contract whereby the supply of rupees necessary for the company's working during the current year will be provided at 1s. 6½d. per rupee for three months' bills.

THE SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT No 1.

I note that the Secretary of the U. P. A. S. I. now publishes, each week, a Report containing items of interest showing the progress of the work of the Association. This appears to be a very good idea, and I think, perhaps, readers would like it were I to fall into line and publish a similar report. I will endeavour to do so each week.

2. I returned from England, and took over the reins of office on 30th April. I am very glad to be back after my holiday, and I am very much looking forward to meeting again my many good friends among the planters. My head-quarters are still at Coimbatore, and my office is now established in my bungalow at the College, No. 2 Lawley Avenue. I shall always be glad to see any planters who may be passing through Coimbatore. My official address is

The Agricultural College,
Coimbatore, Lawley Road P. O.

3. TOUR.—I left Coimbatore on the afternoon of 16th May on a tour of inspection of the Experiment Stations, beginning with the Coffee Experiment Station at Sidapur, Coorg, where I remained till 19th. From there I proceed to Calicut, which I shall reach on 22nd. From Calicut I shall visit the Rubber Experiment Station at Mooply, where I shall remain till about the 27th. I then proceed to Mundakayam to visit the Mycological Station, and shall probably reach there about the 1st of June. I next go to the Tea Experiment Station at Peermade, and shall be back at Calicut on or about 9th June on my way to Kerala. After 31st May my dates are a little uncertain at present, but they will be published in due course. Letters should be addressed to me at head-quarters, Coimbatore, and they will be forwarded to me by my office.

4. THE RUBBER MYCOLOGIST:—Mr. Ashplant, the newly appointed Rubber Mycologist, was expected to arrive on 13th May, but at the time of writing nothing has been heard of him, and presumably his boat is late. It is hoped, however, that he may arrive in time to join me on tour and visit Mooply with me, and proceed to Mundakayam in my company.

5. A PLANTING PIONEER.—Readers may not have noticed the following interesting extract published in a recent issue of the *Madras Mail*, culled from their columns of 50 years ago; viz., 13th May, 1871:—

"The *Pioneer* states that on 23rd instant died in Assam at the age of 78, Charles Alexander Bruce, the discoverer of the Tea plant in Assam. In 1839 he was presented with the thanks of the Government, and in 1841 the Society of Arts conferred on him a gold medal 'for discovering the indigenous tea tracts and for cultivating and preparing tea in Assam.' This is, the *Pioneer* believes, all the reward he got for making a trade which was last year valued at Rs. 1.02,06,362." The tea industry in India now comprises 691,800 acres (1919 figures) with an outturn of 376,917,000 lbs of made tea, of which South India is responsible for 34 million lbs, or just over 9 per cent.

RUDOLPH D. ANSTEAD,
Duputy Director of Agriculture, Planting Districts.

16—V—21.

THE SCIENTIFIC DEPARTMENT, U. P. A. S. I.

The Variability of Yield of Individual Coffee Bushes.

We published in the *Planters' Chronicle*, Volume XV, page 164, the results of an experiment carried out at the Coffee Experiment Station at Sidapur in 1919—20, with the object of throwing light upon the yielding power of individual coffee bushes.

It was then pointed out that, even on the best estates in a good year, a large number of bushes bear a small crop, and that such bushes probably never bear much crop, and that the average yield would be raised if these bushes were replaced. This problem bears on the wider one of when rejuvenation methods for old coffee estates should be begun, either by replanting altogether, or by a system of collar pruning.

As explained last year, a small plot of old coffee containing 110 trees, obviously of low vitality, was chosen, and the crop was harvested off each bush separately, the berries being counted and weighed, and recorded for each individual bush.

This experiment has been repeated this year with the same bushes, which were numbered for future reference. Three pickings were made, the final one being a stripping.

The yields have been collected into groups, as shown in the following table :—

GROUP.	Number of trees.	Per cent of total trees.	Number of berries.	Per cent of total berries.	Weight green crop. lbs.	oz.
0— 100 fruits..	44	50	1921	8·9	6	11
101— 200 do ...	13	14·8	1832	8·5	6	6
201— 300 do ...	12	13·6	2882	13·4	10	0
301— 400 do ...	3	3·4	1000	4·6	2	14
401— 500 do ...	3	3·4	1331	6·2	4	10
501— 600 do ...	2	2·3	1124	5·2	3	15
601— 700 do ...	2	2·3	1226	5·7	4	4
901—1000 do ...	3	3·4	2851	13·4	9	14
1001—1100 do ...	2	2·3	2148	10·0	7	7
1101—1200 do ...	1	1·1	1157	5·4	4	0
1201—1300 do ...	1	1·1	1260	5·9	4	6
1301—1400 do ...	2	2·3	2763	12·8	9	10
	88	...	21,495	...	74	1

Twenty-two trees have been removed from the plot since last year. These have either died of borer, or have been killed by other causes. The fall of a large branch from a dead shade tree also smashed some trees so that they had to be removed.

The total crop from 88 trees examined was 21,495 berries weighing 74 lbs., an average of 244 berries per tree. Three trees had no crop at all, and many gave only a few berries. The highest yield was one of 1,393 berries, so that there was, as last year, an enormous variation.

If now we draw a line below the group in the table containing 201 to 300 berries, that is about the average, we can divide the trees into two main groups, those bearing below the average and those bearing above it,

When we do this, we find that 69 trees fall into the first group, and 19 in the second. That is to say, 69 trees out of 88, or 78 per cent. bear only 30·8 per cent. of the total crop, while the bulk of the crop, 69·2 per cent. is borne on 19 trees, or 22 per cent. of the total.

These figures show a remarkable similarity to those obtained last year, as will be seen from the following table :—

	1919—1920.	1920—1921.
Number of trees experimented with	110	88
Number of trees with no crop	2	3
Average number of berries per tree	270	244
Highest yield of berries on one tree	1,752	1,393
Number of berries in the total crop	29,755	21,495
Green weight of total crop	117 lb. 6 oz.	74 lbs.
Number of berries in one pound	253	288
Number of trees bearing below the average ...	77	69
Percentage of total number of trees	70	78·4
Number of trees bearing above the average ...	33	19
Percentage of total number of trees ...	30	21·6
Percentage of total crop on trees below average ...	31	30·8
Percentage of total crop on trees above average ...	69	69·2

Of the 77 trees which last year yielded less than the average of 300 berries, 18 have been removed, having died or been badly broken. Of the 59 left, it is significant that 43, or 73 per cent., again gave less than the average of 300 berries this year.

This tends to show that a coffee bush which has fallen below a certain standard of vigour and become a bad bearer will remain a bad bearer, if nothing is done to it. It is not simply a matter of season that such bushes do not bear : they never will bear till rejuvenated, and the question arises, as stated last year, can we not distribute better the soil, the moisture, and the plant food, so as to take it from these poor trees and give it to the good ones? It is evident that some 70 per cent. of the trees on this particular plot should be replaced by better bearers. Were they all removed, the crop would only be reduced by 31 per cent.

This experiment will be repeated with the same trees once more this year, and then they, and the neighbouring plot which they represent, will be used for a rejuvenation experiment, to demonstrate the benefits of collar pruning on old worn out coffee.

RUDOLPH. D. ANSTEAD,

Deputy Director of Agriculture, Planting Districts.

CENTRAL TRAVANCORE PLANTERS' ASSOCIATION, PEERMADE.

MINUTES OF THE ANNUAL GENERAL MEETING, HELD AT THE HOSPITAL, PEERMADE, AT 10 A. M. ON SATURDAY, APRIL 30TH, 1921.

PRESENT.—Messrs. E. C. Sylvester (Chairman), J. A. Richardson, J. F. Fraser, J. H. Cantlay, J. S. Wilkie, J. M. Wilkie, W. B. Glenie, H. C. Westaway, R. Tait, J. Wedderspoon, W. E. Forbes, G. S. Napier Ford, C. Ricketts, and A. R. St. George (Honorary Secretary.)

The Honorary Secretary read the notice calling the Meeting.

The Chairman :—

" Gentlemen :—Since our last meeting we have to record the sad death of Mr. W. A. Asher, of Cheenthalaar Estate. Mr. Asher was greatly respected and liked by us all, and I am sure you will all wish with me to express our deepest sympathy with Mrs. Asher and relatives in their great loss." This was passed, all members standing.

1. Minutes of last General Meeting were taken as read, and confirmed.

2. Minutes of Committee Meeting of 26—3-21 were read and confirmed.

3. CHAIRMAN'S ADDRESS.—Mr. Sylvester said :—

" Gentlemen,—The report drawn up by your Honorary Secretary touches on every subject dealt with since our last Annual Meeting, it is therefore unnecessary for me to detain you unduly.

The cause and effect of the depression in the tea and rubber industries are so well known to you all that further reference to them, by me, is unnecessary.

We are plucking with more care than at this time last year, and it is to be hoped we shall reap the benefit by securing prices which will prove remunerative.

No figures regarding the actual restriction of crop effected to date appear to be available, we are, therefore, very much in the dark as to what is being done in South India.

It is very satisfactory to know that the end of the trouble we have experienced for so many years in connection with transport is almost in sight, since, with the opening of the Mundakayam-Peermade Aerial Ropeway, the great difficulties we have had to contend with in connection with carts will soon vanish.

We have to regret the deaths of Messrs. Gerrard, Lacey and Asher, all of whom were well known to you, and we tender our sincere sympathies to their relatives.

I have to thank your Hon. Secretary for the able manner in which he carries out his duties, and I also have to thank you all for the support you have given me.

I now place my resignation in your hands."

4. The Honorary Secretary's report was as follows :—

" Mr. Chairman and Gentlemen :—

MEETINGS.—During the past year under report there have been four General Meetings, one Extraordinary General Meeting, and one Committee Meeting.

MEMBERSHIP.—The Association consists of 26 estates, with a planted acreage of 13938·36 in tea, in rubber of 155 acres, and in cardamoms of 35 acres. This shows an increase in the tea acreage of 279·10 acres over last year.

CROP.—The tea crop, for the calendar year 1920, amounted to 7,088,414 lbs. on a mature acreage of 13312·50 acres, or 532 lbs. per acre against 7,334,239 last year, and 575 lbs. per acre.

HELOPELTIS.—As reported last year, helopelties is still on the increase, and has affected some estates very considerably.

RESTRICTION OF CROP.—Owing to the depressed state of the market, brought about by the enormous surplus stock of tea in the United Kingdom, it was decided by the I. T. Association that the only remedy was restriction. Several discussions and a great deal of correspondence took place. At the second quarterly meeting of this Association, it was resolved that the best method of reducing crop was to throw a certain percentage of the acreage out of plucking, so as to reduce crop by 20%.

Restriction, however, now is entirely voluntary, but at the same time, I think most necessary. Good prices can be realised in London for teas from this District, provided special attention is paid on this side to plucking and manufacture.

LABOUR.—This has, I think, been a problem to most of us during the past year, and, as far as I can see is going to be in future years. Competition is keen, and coolies can earn good wages at their villages.

TIMBER VALUES.—As last year, this has again been the most prominent matter of local interest during the year. A Memorial relating to same, and drawn up by Messrs. King & Partridge, Madras, was sent to the Dewan of Travancore, as well as all members of this Association. The Dewan promised the deputation that waited on him on the 1st April, 1921, that he would study this Memorial most carefully before consulting with His Highness on the matter.

DISTRICT ROADS.—This subject was brought up before the Dewan on the 1st instant, and I am glad to say that the Dewan is very keen to see these roads made pukka. He has promised that half a lakh would be earmarked for the High Range and Peermade next year.

RICE.—The supply and transport of this has been much easier than last year, and rice much cheaper towards the latter end of the year.

TRANSPORT.—At the beginning of the year was a little troublesome, but I think now is much better, and with the Ropeway an accomplished fact I think this trouble is practically over in Peermade.

ACCOUNTS.—These have been kindly audited by Mr. Vinen, and are on the table.

1921-1922 CESS.—A cess of 2½ annas per acre should cover all our own expenditure for 1921/1922.

This, gentlemen, concludes my report, which I am afraid is scrappy and brief, but you must forgive this, as I have only just started this work.

Before sitting down, I should like if I may, to say one thing. On the 31st March most of us were present at the opening of the Ropeway. Mr. Richardson, in his speech as Managing Director, told us the history of the Ropeway from the very beginning, and was good enough to speak in very high terms of all those, both European and Indian, who had taken part at one time and another in its construction. He also told us about the assistance given by the Firms of Rowe White & Co., Aspinwall & Co., the

Madura Co., and Peirce Leslie & Co., but, gentlemen, I think this Ropeway owes its existance chiefly and mainly to Mr. Richardson, and no one else. Mr. Richardson has been the moving spirit throughout ; most other men faced with the anxieties and worries all along that Mr. Richardson has been faced with would have given it up. However, Mr. Richardson carried on, and he is to be most heartily congratulated on the completion of a great work.

I have to thank the Chairman and Committee for their assistance and support, and place my resignation in your hands."

5. ACCOUNTS.—Mr. Sylvester proposed that these, as audited by Mr. Vinen, be passed. Carried.

6. CORRESPONDENCE.—(a) Read letter from the Controller of Contracts, Simla, and Mr. Sylvester's reply, *re.* army Tea Purchases.

(b) Read letter from Mr. Sylvester to the Customs Officer, Kumili, *re.* Export Duty of Rs. 1-8 per 100 lbs. on tea.

(c) Read letter from Mr. D. McArthur to the Dewan of Travancore *re.* the rules for the sale of waste lands for coffee and tea cultivation and title deeds issued. It was pointed out that the Dewan, at the conference on the 1st April with the deputation from this Association, had promised to look into this matter.

(d) Read and recorded letter from Secretary, U. P. A. S. I. *re.* qualified Medical Officer, who would be approved by Members as Medical Officer under the Auxiliary Forces Act, 1920.

(e) Read letter from Secretary, U. P. A. S. I. calling for list of all planters and their addresses in the District.

(f) Read letter *re.* Incorporation of District Associations.

The Honorary Secretary was instructed to write to the Secretary, U. P. A. S. I., substituting the name of Mr. J. A. Richardson as Attorney for Cheenthalaar, Kuduakarnam and Ladrum for that of Mr. J. S. Wilkie.

(g) The Honorory Secretary informed the meeting that he had written the Secretary, U. P. A. S. I., thanking him on behalf of the Association, for the prompt action taken, and the generous support given to an appeal made to the S. I. P. B. Fund.

7. TRAVANCORE COMBINED P. A.—Read letters from this Association, dated 8—3—21, 22—3—21, and 1—4—21. The Minutes of the 7th Annual Meeting, and Honorary Secretary's report were read, and accounts passed round the table.

Resolved from the chair that the Honorary Secretary do write to the Honorary Secretary, T. C. P. Association, requesting that in future 14 days clear notice be given of their Agenda, sufficient allowances being made for posting, so that our delegates can be instructed upon any subjects outside Sri Mulam subjects.

8. SRI MULAM DELEGATE'S REPORT.—This was read and recorded.

Proposed by Mr. Sylvester, and second by Mr. Fraser :—"That a hearty vote of thanks be accorded to Mr. Cantlay." Carried with applause.

9. TIMBER VALUES.—The Honorary Secretary explained that the Dewan had promised to study the Memorial presented to him very carefully, and hopes to discuss this matter with a deputation when in Peermade again.

10. War Memorial.—The Honorary Secretary informed the Meeting that he had been advised by Messrs. P. Orr & Sons that the work would be completed by the middle of April, and he was going to address this Firm again, as no word had been received.

11. Roads & District Roads.—The Honorary Secretary informed the Meeting of the result of the conference with the Dewan *re*, District Roads, and the Ghaut Road and Vandiperiyar-Kumili Road.

Read report by the Executive Engineer on the Glenmary Pambanar Road. The Honorary Secretary was instructed to write to the Executive Engineer on this subject, pointing out that for re-metalling alone Rs. 2,500 per mile is being spent on the Kottayam-Kumili Road, and that, therefore, Rs. 360 per mile for the upkeep of the Glenmary-Pambanar Road is quite inadequate.

Read letter from Mr. J. S. Wilkie offering to take over the Pambanar Section of the Glenmary-Pambanar Road. This was agreed to.

Read correspondence *re*. the Kuruvanuth—Uthamapalayam Road.

12. 1921-1922 Cess.—Proposed from the chair that the 1921-22 local cess be 2½ annas per acre, and carried.

13. Opening Dam Sluices in March-May.—Read correspondence. The Honorary Secretary was instructed to wait till he received a reply to his last letter.

14. Rice Issue.—Read letter from the Secretary, U. P. A. S. I. The Honorary Secretary was instructed to write to U. P. A. S. I., saying that this Association does not agree to this, as the weight measurement is objected to.

15. Mundakayam Cooly Chathram.—The expenditure of Rs. 150 for the current year for this was sanctioned.

16. Grants of land to Demobilized Soldiers.—The Honorary Secretary explained that the Government of India have notified the Government of Madras that they do not propose to take up the question of making free grants of land anywhere in India to demobilized British Officers or soldiers.

17. Election of Office-Bearers.—

Chairman	...	Mr. E. C. Sylvester.
Committee	...	Mr. J. F. Fraser.
Do	...	Mr. G. S. Napier Ford.
Do	...	Mr. R. J. McMullin.
Do	...	Mr. H. C. Westaway.
Do	...	Mr. J. H. Cantlay.
Hony. Secretary,	...	Mr. A. R. St. George.
U.P.A.S.I. General Committee	...	Chairman : Mr. F. C. Sylvester. Hon. Secy : Mr. A. R. St. George.

18. Other Business. (a) Auxiliary Force.—Resolved that until the Military Authorities can see their way to put a Sergeant-Instructor for Peermade and Mundakayam, it is impossible to support the Auxiliary Force as represented by the S. P. M. R. It is also considered that the formation of a motor Machine Gun Detachment or Detachments would meet with favourable support.

(b) CART RATES BETWEEN ESTATES AND ROPEWAY TOP STATION. —A Committee, consisting of Messrs J. F. Fraser, H. C. Westaway, and J. S. Wilkie, was formed to discuss and decide upon rates,

With a vote of thanks to the Chair, the meeting terminated.

(Signed) E. C. SYLVESTER,
Chairman.

(,,) A. R. ST. GEORGE,
Hony. Secretary,

MUNDAKAYAM PLANTERS' ASSOCIATION.

MINUTES OF AN EXTRAORDINARY GENERAL MEETING, HELD AT 2-30 P. M., ON SATURDAY THE 7TH MAY, 1921, IN THE MUNDAKAYAM CLUB.

PRESENT.—Messrs J. R. Vincent (Chairman), H. B. McPherson, F. G. Millar, H. R. Carson Parker, M. F. Shore, G. A. Brooke, R. M. Saywell, R. G. R. Keene, C. L. McLean, A. V. Máwer, W. H. Stantan, A. B. H. Dickson, and F. H. Moulton (Hon. Secretary).

1. MINUTES OF COMMITTEE MEETINGS.—The Hon. Secretary having read the notice convening the meeting, and the Minutes of the Committee meetings held on 19th February and 9th April, 1921, Mr. Millar proposed and Mr. Carson Parker seconded "that they be confirmed." Carried.

2. MYCOLOGICAL STATION.—The Chairman made a report on the progress of work on the Station, and informed the meeting that the Executive Committee, U. P. A. S. I. proposed to meet in Mundakayam on 17th inst. and inspect the buildings. It was proposed by Mr. McLean, and seconded by Mr. Millar that the monthly weeding of the compound be commenced. Carried.

3. SRI MULAM DELEGATE'S REPORT.—This was read by the Hon. Secretary, and under the subject of roads a reference was made to the visit of inspection promised by the Dewan of Travancore. The Hon. Secretary stated that the Dewan had asked to see him in Peermade on the 10th inst., in order that they might arrange the tour of the District. The meeting requested the Hon. Secretary to meet the Dewan and to arrange to inform members at once of the time and place of meeting.

4. CATTLE POUND.—A letter from Government stating that the Pound is in need of repairs, and complaints from members as to the very small fines imposed on owners of cattle impounded having been received, it was proposed from the Chair that the Magistrate be asked to increase the fines as much as possible, and the Government be asked to repair the Pound out of the revenue derived. Carried.

5. DISTRICT CONTRACT RATES.—These were placed on the table, and the Honorary Secretary was requested to forward a copy to each Estate on the Association's books. Mr. McLean proposed a hearty vote of thanks to the Special Committee for the work they had done on behalf of the Association in drawing up the list. Carried unanimously.

With a hearty vote of thanks to the Chairman, the meeting terminated.

(Signed) J. R. VINCENT,
Chairman.

(,,) F. H. MOULTON,
Honorary Secretary.

Reduction and Retrenchment from the Entomological point of view.

(Continued.)

Reduction in expenditure on manuring will doubtless be almost universal. Such expenditure as is incurred will, or at any rate, should be incurred with the idea, not of forcing high yield from the bushes, but of getting the soil into as good fettle as possible against the time when leaf is to be forced through once more. Attention will therefore probably be directed to the application of phosphoric acid and potash rather than nitrogen. Such a change will be of vast benefit to the bushes, for excessive nitrogenous manuring has a great tendency to increase the liability of the bushes to disease, and there is no doubt that continued nitrogenous manuring is one of the contributing factors to the increase that has been observed in the spread of certain diseases of tea. There is no doubt, either, that nitrogenous manuring will be largely resumed on the return of normal conditions. Nitrogen is necessary if leaf is to be forced through, and one does not revert to beef from an ox fed at grass because the stall-fed ox is more delicate. At the same time, by a judicious use of manures other than nitrogenous during this period of depression it will be possible to counteract many of the ill effects of over-manuring with nitrogen, and to restore to the bushes some of the hardiness and resistance to pests and diseases that they possessed befors this intensive manuring was undertaken.

This short note may be considered unsatisfactory in that no hard and fast rules have been laid down as to the lines on which crop reduction and retrenchment should be carried out. Conditions vary to such an extent that it is not possible. One can only bring forward points worthv of consideration, the practical application of which must be considered by each planter from his own point of view. One can, however, lay emphasis on a few points :—

Don't let fine plucking be carried out in such a way as to take more out of the bush.

Don't save money on middle and heavy pruning, unless it be done by pruning a smaller area.

Don't dispense with cold weather forking and thullying if it can possibly be avoided.

Don't forget that while a decrease in the amount of cultivation may favour the multiplication of caterpillar and beetle pests, a judicious control over the times at which the hoe is used will do much to mitigate it.

Don't forget, when applying manures, that an opportunity is now afforded for increasing the hardiness of the plants, for which purpose forcing manures are not of value.

(E. A. A. in the "Indian Tea Association Scientific Department Quarterly Journal," 1920, Part IV).

RUBBER TRADE ASSOCIATION OF LONDON.

Monthly Statistics,

APRIL, 1921.

Movements of all kinds of Rubber to and from the United Kingdom as per BOARD OF TRADE RETURNS.

IMPORTS.

From	March.			3 Months ended Mar.		
	1921	1920	1913	1921	1920	1913
Straits Settlements and F. M. S.	4 591	4,622	2,075	15,885	14,127	5,715
Ceylon and British India	2,589	2,361	608	6,647	7,613	1,858
Dutch East Indies, &c.	1,418	429	111	4,097	2,187	270
Brazil and Peru	342	1,564	2,121	852	1,992	6,044
Other Countries	64	233	1,311	302	625	4,631
Total Tons...	9,004	9.209	6,226	27,783	26,544	18,518

EXPORTS.

To	March.			3 Months ended Mar.		
	1921	1920	1913	1921	1920	1913
United States of America	999	5,484	1,131	1,311	14,507	3,758
Canada	...	298	39	11	1,232	89
France	463	1,968	379	930	3,826	1,087
Belgium	23	250	165	207	787	461
Italy	58	467	15	263	853	57
Spain	24	5	9	46	22	24
Germany, Austria, Hungary	419	286	1,152	1,617	640	2,921
Russia	...	...	488	...	19	1,761
Sweden, Norway and Denmark	23	63	83	329	211	186
Other Countries in Europe	39	8	99	383	129	317
Other Extra European Countries	1	61	69	20	230	160
Total Tons	2,049	8,890	3,629	5,117	22,456	10,821

LANDINGS, DELIVERIES and STOCKS in London and Liverpool as returned by the Warehouses and Wharves during the month of March.

		Landed for Mar.	Delivered for Mar.	Stocks 31st Mar. 1921.	1920.	1919.
LONDON ...	Plantation ..	7,446	2,967	63,513	20,204	14,092
	Other Grades ...	...	5	400	565	458
LIVERPOOL...	Plantation ...	709†	131†	5,423†	1,384†	2,400†
	Para & Peruvian.	400	330	1,122	816	670
	Other Grades ...	4	...	460	377	499
Totals London & Liverpool ...		8,559	3,433	70,918	23,346	18,119

† Official Returns from the six recognised Public Warehouses.

Movements of all kinds of Rubber, excluding Gutta, Balata and Guayule, to and from the U. S. A. AS PER RETURNS OF THE UNITED STATES DEPARTMENT OF COMMERCE.

	January. 1921	1920	1919	12 Months ended Dec. 1920	1919	1918
IMPORTS ...	12,014	29,655	10,285	252,921	239,259	145,517
EXPORTS ...	519	252	85	4,132	2,282	2,745

RECEIPTS AT PARA.

	February. 1921	1920	1919	Jan./Feb. (two months.) 1921	1920	1919
Rubber ...	1,549	3,060	3,970	3,576	5,680	5,846
Caucho ...	255	620	540	575	920	1,554
Total...	1,804	3,680	4,510	4,151	6,600	7,400

Estimated for March.	Rubber ...	1,602
	Caucho ...	265
	Total...	1,867

RUBBER ROADWAYS, Ltd.

PRESENT STATE OF PROGRESS.

The report and accounts of Rubber Roadways, Ltd., for the year ended December 31st, 1920, are now to hand. The accounts show that practically the whole of the issued capital is for the time being invested in 5 per cent. War Loan.

The directors state that the method referred to in their last report of vulcanizing the rubber cap on to a plain steel plate proved after experiment not sufficient to withstand the heavy traffic which the roadway has to carry. As a result it was decided to experiment with vulcanizing on to expanded metal instead of a plain steel plate.

As to the length of life of the rubber caps the directors have no doubts, but as to how long the attachments will stand the great strain involved by present day traffic has yet to be discovered. So far they claim to have proved that a rubber roadway is dustless, clean and easily squeegeed, therefore sanitary and, most important of all, non-skidding. Horses get a clean grip on it, and there is no skidding of omnibuses or cars. It is virtually noiseless, and there is no vibration in the surrounding houses. It should therefore prove of great benefit to hospitals, schools, and for offices where absence of noise and vibration is essential.

EXPERIENCE WITH RUBBER ROADWAYS IN SOUTHWARK.

Accompanying the report is a copy of a statement made by Mr. Arthur Harrison, the borough engineer for Southwark, detailing his experience of the rubber roadway laid there by the company. Mr. Harrison says:—

Experiments in the use of rubber as a carriageway pavement have been made by the Rubber Growers' Association, and afterwards by Rubber Roadways, Ltd., in conjunction with the Metropolitan Borough of Southwark, extending over several years. In August, 1913, a small section of rubber capped hard wood blocks, between two and three yards in area, was laid at the junction of Old Kent Road and New Kent Road. The rubber was in the form of a capping about ½ in. thick, having dovetail projections running longitudinally fitted into dovetailed grooves in a hard wood block. A short time after these blocks were fixed several of the caps became detached and were replaced, but in June, 1915, it was decided to take up all the blocks for examination.

During the period—one year and nine months—this patch of rubber had been under trial it ad carried a traffic averaging over 190 tons per yard of street width per hour. No case of slip has been found, in fact, it was the part of the roadway where a true imprint of horse shoes could always be found, whereas generally in other parts the imprint of horseshoes showed a slight slip or twist in damp weather.

These observations were considered most important, as previous to this section being laid there was a belief that the rubber would prove to be slippery and not give a good foothold for horses, and that it would facilitate the skidding of vehicles.

The blocks were next carefully examined for wear. On being placed side by side with unused blocks they did not appear to have lost anything through wear, although there were several slight scratches on the surface, but on removing the rubber cap from the wood block it was found that considerable wear had taken place both on the wood and underside of the rubber cap.

It therefore became necessary to reconsider the future design and method of laying the rubber, and works experiments were made in several directions, having in view the fact that friction against the underside of the rubber must be eliminated.

At the latter end of 1918 a new type of block was produced consisting of a slab of rubber $\frac{9}{16}$ in. thick, 9 in. long by 3 in. wide, vulcanized on to a steel plate, this plate being cut with eight cuts about 1 in. long so as to produce four lugs for holding down into concrete.

A site was selected in Borough High Street on the breast of the road on one side of the tramway, exclusive of the margins, and subject to fast, heavy traffic of about 240 tons per yard width per hour, about 100 yards in length, varying in width from five to three yards.

The selected site had a foundation of reinforced concrete recently constructed for paving with wood blocks 4 in. deep. This depth of 4 in. was made up with fine concrete composed of clean grit sand in the proportion of one of cement to four of sand, in which the rubber blocks were placed in such a manner that the lugs were embedded in and gripped by the concrete.

This work was carried out in February, and opened to traffic on March 16th, 1920.

Shortly after the traffic had been running over it, several of the rubbers became detached from the steel plate, and were replaced with new blocks having the vulcanite carried to a greater temper. Within a few months some 15 per cent. of the blocks had separated from the plates, and at this point it seemed settled that the type in use which had withstood satisfactorily works tests would not succeed under the fast and heavy traffic. About half the area was then taken up, and an examination of the blocks showed various weaknesses that must be eliminated. It also gave some surprising results of the behaviour of rubber under the heavy conditions applied.

This was sufficient to encourage further developments to be made, and in the light of the experience gained a new type of block was produced in which the ordinary steel plate was substituted by a plate of expanded metal embedded in the vulcanite, this plate being provided with added lugs. The area cleared was thereupon relaid with this latest type of block, and the remaining portion patched, so that on December 13th, 1920, the whole of the road consisting of two distinct types of rubber block paving was reopened to traffic.

Since that date the section paved with new rubber block has continued with satisfactory results. So far none of the rubbers have shown any of the previous defects, whereas during the test of the steel plate type over a similar period some 200 rubbers had become detached. There are several blocks at present in the new system which are not quite in a satisfactory position, but this is caused by a fault in laying and not in any way with the type of block.

The remainder of the section of old type (steel plate) which was not relaid, but only repaired, continues to give trouble, and this type may be looked upon as unsuitable for street paving works; and the question of replacing it must be taken into consideration shortly.

It is hoped during the coming year to lay a section of rubber foot pavement also in Southwark, for which permission has been obtained.—*India Rubber Journal.*

AN IMPERIAL BUREAU OF MYCOLOGY.

The growth of plants is limited by many factors, some of which, as for instance, inadequate water—and air-supply, are of a physical nature; other limiting factors like the attacks of insects and fungi (primary parasites) are strictly pathological, producing conditions of injury or disease in the tissues of the host. These pathological disturbances, caused by pests and diseases, are more insidious than those of physical nature, and are more difficult to remedy and control. In the eyes of Nature an insect of a fungus possesses as much right to live as a plant which happens to be useful to man. Hence in fighting against pests and diseases, one is actually fighting against nature, and it is therefore important in directing a campaign to take broad views from as many lofty points as possible. It is necessary to understand the plant and its requirements and constitution; similarly must the pest be understood. It is also important that the work of investigators should be co-ordinated, and their ideas focussed towards a central point of inquiry. An indispensable line of work in fighting pests and diseases is that of a centralized institution where pests and diseases can be classified and compared so as to relieve investigators whose work lies largely in the field, and whose studies are more analytical, of that systematic observation work that properly belongs to a museum.

For some years, now, Departments of Agriculture have realized the necessity for this broader outlook in entomology and mycology, as well as the need for co-ordination and specialization. The economic entomologist and mycologist of to-day have due regard to field conditions and physiology, for it is abundantly clear that the incidence of many pests and diseases is associated with certain environmental conditions, which if removed will reduce existing affections considerably. Nevertheless one must not underestimate the parasitical powers of injurious insects and fungi: species must be carefully studied and classified. Carried out on broad lines, this work furnishes information as to the exact distribution of the different parasites, and assists in restricting further extension.

For the co-ordination of work in entomology, for identifying insects and for collecting information relating thereto, the British Empire has for some years had the advantage of possessing an Imperial Bureau of Entomology in London. Recently the need for a similar institution in regard to the diseases of plants has led to the formation of an Imperial Bureau of Mycology, also situated in London. This Bureau, like that of Entomology, follows the work of investigators abroad, and assists in identification work and advice. The Director of this Bureau is Dr. E. J. Butler, C. M. G., late Imperial Mycologist, Director of the Research Institute, Pusa, and Agricultural Adviser to the Government of India. The Committee of Management consists of some of the foremost biologists in Great Britain. The funds of the Bureau are entirely provided by contributions from the various self-governing Dominions, India, Egypt and Soudan, and the non-self-governing Colonies and Protectorates. The general functions of the Bureau have been stated: in addition, the Bureau proposes to issue, as soon as funds permit, a periodical journal through which those interested in mycological work in regard to agriculture will be kept informed of progress elsewhere. There are at present over fifty officials engaged in this work in the overseas parts of the Empire. But to issue the Journal, which involves a great deal of examination of literature and of abstracting more funds are required. Various Governments in different parts of the Empire have been appealed to for annual contributions: the size of the contributions asked for is small, and it is earnestly to be hoped that every Government of a Colony that is at all dependent on agriculture or forestry will see its way to conform to this appeal, which has been made by the Secretary of State for the Colonies.

It seems pertinent at this point to give the reader an impression of the enormous losses that are incurred by agriculturists through the attacks of fungi on economic plants. The effect of fungus diseases in reducing crop production is great beyond calculation. Turning to northern countries first, it is reported that a Canadian scientist has estimated the loss caused by rust in wheat in the prairie region of Canada in 1917 at 100,000,000 bushels, representing a value of between £25,000,000 and £50,000,000. For the same year the loss in the five chief cereals in the United States exceeded 400,000,000 bushels. The effect of this on the provisioning of the world can be easily imagined. In regard to the reduction of plant growth by fungi in the tropics, the most insidious disease, and one perhaps which has occasioned the greatest losses, is the Panama disease of bananas. To express the damage done in figures is impossible, for the losses have not been determined; but they must amount to millions of dollars. The United Fruit Company has virtually been driven from place to place in Central America by the Panama disease. Hundreds of square miles of good land have had to be abandoned, and not only the land but the railways, bridges, tramways, dwellings, hospitals and other expensive constructions. In British Honduras, the Stann Creek railway has never paid on account of Panama disease; in Jamaica, while the disease is under control there has nevertheless been a good deal of land abandoned, and the cost of executing the control is a big expense to the Government. Panama disease absolutely wiped out the banana industry in Surinam. Can there be any question, therefore, of the importance of co-ordinated work in mycology? Scores of other diseases occur, in some cases quite as serious as the Panama disease. But rot of coco-nuts together with red ring disease have practically precluded the growing of coco-nuts in Cuba, and in most countries these diseases cause very serious losses. There are also the various root diseases of cacao, limes, and sugar-cane, and many others too numerous to mention.

But although a large amount of investigation has been done for the last twenty-five years on tropical diseases of plants, one is forced into realizing that the outlook has been circumscribed. A plant disease, like Panama disease, is not merely a mycological problem, but a biological problem. The study of it involves not only mycology, but also physiology and genetics. Physiology embraces chemistry and physics. Hence it is impossible for one man to study effectively a disease of this nature. It is a problem for a group of specialists.

It may be suggested that the Bureau of Mycology might, to an increasing extent, adopt this attitude towards problems of plant disease. One of the Bureau's most useful functions could lie in the way of directing research, in formulating plans of attack. Up to the present we have lacked strategy and finesse. If the Imperial Bureau of Mycology is to win in the campaign against plant diseases for the British Empire, it must not merely collect intelligence, but apply it, as well. There are probably many who would prefer it, if this new institution had the more comprehensive title of the Imperial Bureau of Plant Diseases, or of Plant Pathology, thereby signifying the idea of a broader mycology.—*Agricultural News.*

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" COFFEE.

(BY CABLE.)

LONDON, DATED 20TH MAY, 1921.

110s. per cwt. Market Quiet.

THE LABOUR SITUATION.

A fortnight back we reprinted from the *Times of Ceylon* an article on the Ceylon Labour problem which seems to have been engendered by the fear of a possible false step doing incalculable harm to Ceylon's most valuable asset—the Tamil cooly. Our island contemporary quite rightly points out how Ceylon's reputation has been strengthened by the results of investigations by Mr. C. F. Andrews into the labour conditions of the country, but shows up two remaining weak points in the advance system, and the penal clauses of the Ceylon Labour Laws. To strengthen these, an appeal is made to the Planters' Association, with a view to the immediate drafting of an Ordinance embodying the legislation so urgently required.

Unless this is done, our Contemporary trembles to think of the results when the pinch comes, as it will before many months are past.

At the meeting of the Federal Council of Malaya on 7th April, the Hon'ble Mr. Wm. Duncan is reported by "The Planter" to have said:—

"As I have always preached, I consider that, as time goes on, the greatest need of this country will be labour. It is one of the two requisites of production; without it our tin fields and fertile lands would have no value, and we should be reduced to the state of having to take in each others' washing and of utilising our mines as wash tubs, and our rubber trees as drying poles. Through stress of present circumstances, labour is leaving the country in abnormal numbers, and no opportunity should be lost of arresting the exodus. It is true that Government have signified their willingness to provide work, surplus labour, but it is evident that either the conditions of employment offered are not sufficiently attractive or adequate steps are not being taken to let it be known that work is available.

Whatever happens in the immediate future with regard to tin and rubber, both will survive this crisis and then there will be a scramble for labour, with resulting competition, high wages and high production costs. Present financial disabilities debar private employers from retaining all the labour they would like to, and I make the suggestion that all labour employing departments of Government should immediately take steps to recruit in the countries where is the labour which they are prepared to employ and cannot get locally."

We can readily agree that this exodus of coolies from and cessation of recruiting for Ceylon and Malaya is due entirely to economic factors, particularly the rubber position, and it will be seen that both countries are agreed on the point that the pinch is coming—we are optimistic enough to believe that the time is not far distant when the Rubber Estates will again be in a position to get to work in full blast, and then indeed there will be a scramble for labour. Although, we believe, not so acute in this country, the South Indian planter is also faced with this future problem of labour, and the point we wish to emphasise is that made by the *Times of Ceylon*, the situation as it stands is an extremely delicate one and it behoves us accordingly to walk delicately, so that no such false step as that feared by our neighbours shall mar the position we are now in, or render ineffectual the dispositions we shall be shortly on the point of making for the future. That the struggle is before us is obvious, and for that reason we welcome the resolution passed by the Anamallai Planters' Association at their Annual General Meeting, to which reference is made again in the minutes of an Extraordinary Meeting of that Association published in this issue. The Labour Department, with all its faults, remains to-day the one means of combating outside recruiting; its efficiency is a matter of immediate concern to all planters in South India, though they may not agree with its principles; it forms just that centralising organisation which is needed, and will be still more necessary when the " pinch comes" as our friends have it.

Our minds to-day are full of the appalling news of the exodus of coolies from Assam. Whatever may be the cause, and we do not propose to discuss that, it seems obvious that there has been among planters in Assam just that lack of vision which we have often enough, in these columns, endeavoured to instil into the minds of South Indian planters. In Ceylon and Malaya contemporary opinion has run for years on very much the same lines, the same warnings of possible trouble have been given, and the means boldly enough laid down to preclude the possibilities of such an exodus. In the press generally, planters have been persistently advised that unless they carried out reforms at once and voluntarily, the time would come when they would be forced to carry them out. There is not the slightest doubt that the conditions in South India, Ceylon and Malaya, of Estate labour have immensely improved since these warnings were uttered, but that does not mean that we shall thus be immune from trouble such as tea planters are now experiencing in Assam. The improved conditions are indeed an immense help, but as the *Times of Ceylon* points out, they are not everything—there are other matters which still require attention, and that is why we in South India, our contemporary in Ceylon and Mr. Duncan in Malaya are agreed that a single false step now may bring down about our ears the whole fabric of the building we have severally and so laboriously built up.

In times of crisis such as we are passing through at present, the vision is apt to become distorted. In this matter of labour, the present position, the coming struggle, the future of the Labour Department, are all points which are liable to such close examination individually that one loses the view of the whole. We appeal to planters to take the longer vision, to examine from the heights, out of the immediate environment of their own particular problems, the labour situation as a whole, as it is and as it will be, before they decide in a hasty moment, clouded by the fog of parochial politics, to take any steps which might endanger the whole structure of the Labour Department.

THE SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT No 2.

TOUR.—I reached Calicut from Coorg on 22nd May, and then proceeded to visit the Rubber Experiment Station at Mooply. From there I go next week to Mundakayam, which I expect to reach on 31st May. From Mundakayam I visit the Tea Experiment Station at Peermade, and shall be there from 2nd to 5th June. I expect to be back at Calicut about the 9th June, and from there proceed to Kerala.

THE RUBBER MYCOLOGIST.—Mr. Ashplant arrived in Madras on 16th May, and reached Coimbatore on 20th. He joined me at Calicut, and accompanied me on my visit of inspection to the Rubber Experiment Station at Mooply, on his way to head-quarters at Mundakayam.

THE COFFEE EXPERIMENT STATION.—I paid a visit of inspection to the Coffee Experiment Station at Sidapur in Coorg, from 17th to 21st May, and found it looking very well. Serious work has now been begun there with a series of experiments, and I hope Coffee planters will pay the Station a visit when they can. A good deal still remains to be done to level up the various plots, fill up vacancies, etc., but a good start has been made. A large number of supplies raised from selected seed in the Station nurseries have been put out, a start has been made with shade regulation, and the Station has been generally cleaned up. All old logs and stumps are being gradually removed from the coffee and burned.

The most interesting thing on the Station at the moment is probably the two acre plots which have been planted up with Hybrids, Kent's and Jackson's, respectively. These plots contained old moribund coffee, and were typical of much of the old coffee to be found on many estates. It gave poor yields, and it was doubtful whether it ever paid for the work and manure put into it. This coffee was entirely removed, as well as all the shade except the big trees, the area was limed, and big pits were made, and Hybrid plants raised from seed in the Station nurseries, put out and temporarily shaded with lithosperma. This will provide an interesting trial, not only of these two races of Hybrid coffee, but also of what can be done to replace old coffee with a new and vigourous strain. Both plots will receive exactly the same treatment throughout. The young plants have made excellent growth, and are looking very well.

Bad blossom showers were experienced again this year, and heavy rain fell on the open blossom. Consequently there is a small crop on the Station and on the neighbouring estates. The coffee generally, however, is looking very healthy, and has benefitted from the recent showers.

THE IMPERIAL BUREAU OF MYCOLOGY AT KEW.—Dr. E. J. Butler, C. I. E., late Imperial Mycologist at Pusa has been appointed Director of the new Imperial Bureau of Mycology. This is situated at Kew, and Dr. Butler, whom many planters in South India will remember, started work there in 1920 When at home I had the pleasure of visiting the Bureau and seeing Dr. Butler several times. The Bureau will benefit mycological workers in the East enormously, and through them the planters.

The British Empire has for some time had the advantage of an Imperial Bureau of Entomology in London for the co-ordination of work in entomology, identifying insects, and collecting information. The Imperial Bureau of Mycology will be developed on similar lines. The necessary funds are entirely provided by contributions from the various self-governing Dominions, and India, Egypt, the Sudan, and the non-self-governing Colonies and Protectorates.

One function of the Bureau is to compile and card index all references dealing with fungoid diseases of plants, and to keep in touch with all mycologists working at these problems, so that in future it will be possible for any man tackling a new disease to find out what has been done with regard to it in other countries and by other workers, and over-lapping of work will be avoided. This will be of immense value to mycologists working in out of the way places, with incomplete libraries. The Bureau also proposes to establish as complete a collection as possible of specimens and pure cultures, so that mycologists visiting Kew may be able to compare their own specimens with those from other countries.

The Bureau will rapidly become a source of up to date information about all plant diseases due to fungi, and will be able to answer questions accurately about the work done on plant diseases in all parts of the world.

Some time ago we were anxious to know whether secondary leaf-fall was prevalent in South America, and, later, whether brown bast had been noticed there. I believe that, at the time we were unable to obtain the information we wanted. In future the Bureau will be able to give us such information, if it can possibly be got.

RUDOLPH. D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

21–V–21.

ANAMALLAI PLANTERS' ASSOCIATION.

MINUTES OF AN EXTRAORDINARY GENERAL MEETING OF THE ANAMALLAI PLANTERS' ASSOCIATION, HELD AT THE ANAMALLAI CLUB, ON TUESDAY THE 10TH MAY, 1921, AT 2-30 P. M.

PRESENT.—Messrs. J. Hatton Robinson (Chairman), E. W. Simcock, D. Cooper, F. Simmons, J. H. Ireland-Jones, A. C. Cotton, and J. E. Sampson (Honorary Secretary.)

VISITORS.—Messrs. J. Gold, and W. Littler.

The Chairman read a letter from Mr. J. E. Carless, regretting his inability to be present.

MINUTES.—The Minutes of the Sixteenth Annual General Meeting, held on the 20th April, 1921, were taken as read, and confirmed.

SUBSCRIPTIONS TO U. P. A. S. I.—The Honorary Secretary read letter from the Secretary, U. P. A. S. I., No. 280, dated the 25th April, 1921, stating that this Association's resolution on this subject, passed at the Annual General Meeting, held on the 20th April, 1921, appeared rather indefinite, and requesting a clear statement of exactly what extra powers this Association wishes the General Committee of the U. P. A. S. I. to be given.

Also read Articles Nos. 6 (a), and 13 (b).

The meeting was not prepared to in any way alter the resolution referred to, and instructed the Honorary Secretary to reply accordingly to the Secretary, U. P. A. S. I., stating that this Association requests that the Secretary, U. P. A. S. I. will place same upon the Agenda of the Annual General Meeting to be held in August next, under any heading deemed suitable, and will circulate same to all other Associations. The matter has to do with the efficiency of the Labour Department, and it was pointed out that this Association is not in the position to decide exactly what funds are required to place this Department on a satisfactory footing.

TOWNSHIP AND SHANDIES.—Read letter from Mr. C. R. T. Congreve, dated the 29th April, 1921, stating that he had received an application for permission to erect a shop on the Township for the purpose of trading in oilmanstores generally.

The meeting approved of the idea, provided the difficulty of a 99 years' lease could be surmounted.

After considerable discussion, the Honorary Secretary was directed to refer to the Collector of Coimbatore, requesting that the whole of the Township land, less that reserved by Government for Public Buildings, may be granted to this Association on a 99 years' lease, and pointing out that this application was made with the idea of letting out building sites to suitable shop-keepers, etc., on short leases, with a view to the development of the Township.

The Honorary Secretary was directed to ascertain upon what terms the land could be had.

TRANSPORT.—The Honorary Secretary read the Minutes of the Meeting of the Transport Committee, held on the 28th April, 1921, and these were duly confirmed.

Mr. Gold, a Director of Messrs Massey & Co., Ltd, considered that the figures compiled at the above-mentioned meeting were sound; with the exception of, possibly, the item for erection of wagon sheds and workshops for the complete fitting up of the latter a further Rs. 5,000 might be found necessary. Mr. Gold then referred to the F. W. D. wagon, to which the attention of the Association had been recently drawn, and which wagon the Transport Committee had in mind when compiling these figures. He considered that the Committee were right in estimating for two drivers per lorry. This wagon, he was confident, would be found economical, and the tyre mileage estimated by the Committee would be considerably increased with better roads. In connection with lorries, the Government of India had instituted a Subsidy Scheme, by which all lorries of a certain capacity, of which the F. W. D. wagon was one, would receive Rs 600 per year on registration. At present there was a difficulty in connection with the F. W. D. wagon, Government having made the condition that all lorries so subsidised must have steel wheels. All future F. W. D. wagons delivered would be so equipped, and, in the meantime, permission was being sought to obtain the subsidy for the F W. D. wagon at present in India, but without steel wheels, it having been pointed out to Government that the distribution of the load equally between the front and back wheels to a large extent obviated the disadvantage of wheels other than steel. Mr. Gold informed the meeting that a portable suction gas plant had now been patented for use with the same engines at present installed in lorries. This is entirely satisfactory, but has not yet reached a commercial stage. He considered that development of this idea would follow in the course of a few years, and that there would then be practically no other form of plant used for transport.

Mr. Gold stated that, should the 12 proposed lorries be ordered through Messrs. Massey & Co., Ltd., they would be pleased to find a suitable engineer for the Company, and would gladly assist in obtaining the necessary drivers. He pointed out, however, that the price for these lorries at present quoted would not remain in force for any length of time, and that, in the not far distant future, the price might reasonably reach Rs. 20,000.

The Chairman, on behalf of the Association, thanked Mr. Gold for his attendance at the meeting that day, and for his interesting remarks.

CORRESPONDENCE.—

ROADS.—Read letter from the Chief Engineer, Public Works Department, dated the 30th April, 1921.

TOWNSHIP.—Read letter from Mr. E. Hardy, dated the 4th May, 1921, drawing the attention of the Association to a suggestion made in January, 1920, that the Sub-Magistrate's monthly Court be held at the Valparai T. B., in place of at the Iyerpadi T. B. The Honorary Secretary was directed to refer the matter to the District Magistrate, mentioning that gentleman's communication, C. No. 306/M. of 1920, dated the 19th May, 1920.

PLANTERS' BENEVOLENT FUND.—Read letters from the Secretary, U. P. A. S. I., Nos. 334 and 402, dated the 26th April and 2nd May, 1921, respectively, in connection with the collection of subscriptions to the Fund by V. P. P. The Members present expressed the opinion that they would prefer the subscription to be collected through Honorary Secretaries as heretofore: and the Honorary Secretary was instructed to inform the Secretary, U. P. A. S. I., that he would arrange to collect subscriptions as usual, if such collection was in order.

LABOUR MATTERS.—The Honorary Secretary read certain correspondence between the Superintendent of the Labour Department, and himself, (as Manager of Pachaimallai Estate), with reference to the apparent procedure of the Manager of an Estate in the Nilgiris, in handing a Maistry his agreement, cancelled, (while that Maistry still owed that Estate money), and taking a pro-note from the Maistry for the amount in exchange.

The Honorary Secretary requested the support of the Association in bringing this matter before the Director of the Labour Department, pointing out that this procedure was tantamount to issuing an "open tundu," against which there is an Inter-District Rule: also, that on receipt of advance from any estate, the Maistry would immediately repay the amount due to the Nilgiri Estate, and consequently be unable to place on the new estate a satisfactory proportion of the labour contracted for.

The meeting was in favour of the matter being referred to the Director of the Labour Department for his opinion, and possible action.

(Signed) J. HATTON ROBINSON,
Chairman.

(„) J. E. SAMPSON,
Honorary Secretary.

SOUTH TRAVANCORE PLANTERS' ASSOCIATION.

MINUTES OF THE ANNUAL GENERAL MEETING, HELD IN QUILON CLUB ON SATURDAY, MAY 7TH, 1921, at 12 NOON.

Present.—Messrs. J. B. Cook (Chairman), E. Lord, J. Mackie, G. McPherson, R. N. W. Jodrell, J. L. Hall, L. G. Knight, T. L. Jackson, and J. R. N. Pryde (Honorary Secretary).

Minutes of the last quarterly general meeting were taken as read, and confirmed.

CORRESPONDENCE.—The Honorary Secretary read a letter from the U. P. A. S. I. concerning the Benevolent Fund, and pointed out that no response had been made to the circular issued recently. Those present agreed to subscribe, and the Secretary was asked to obtain a supply of "Form Bs," if possible, and circularise members, and it was hoped that a full response would be made.

Arising from the correspondence, the question of subscription to and rules of the Lady Ampthill Nurses Institute and S. I. Nursing Association was considered, and the Secretary was instructed to approach the Institute regarding continuing on the same terms as last year, and to obtain fuller information regarding the new rules, which were not quite clear.

SRI MULAM DELEGATE'S REPORT.—The Association had only brought forward one subject—Roads, and Mr. Pryde read his report giving the information elicited regarding the Koni-Vadasarikara, and Kumarapuram-Perumchelamboo roads, to which attention was being given by Government. Regarding the proposal of an enactment regulating the width of bandy wheel tyres, consideration was promised, but no definite reply given. Mr. Pryde was then thanked for representing the Association.

INCORPORATION.—At the last meeting it had been resolved that the Committee revise the rules to conform to the Articles of Association, and the Honorary Secretary read the Committee's proposals. Considerable discussion arose regarding the admission of Personal Members, Mr. Mackie stating that he thought that Estate Superintendents could have the various companies' votes, but this point had previously been decided to the contrary by the Association's Solicitors: The following resolution was then put to the meeting, and carried:—" Superintendents of Estates which are members of the Association, and employees of mercantile firms interested in planting,may become Personal Members upon an annual payment of Rs.10, or may join at any quarter on payment of proportionate subscription for the remaining quarter entitling them to one vote." This was now to be added to the rules.

At this stage the meeting adjourned for lunch.

On resuming, the following applied, and were accepted as Personal Members:—Messrs. J. B. Cook, E. Lord, G. McPherson, R. N. W. Jodrell, J. L. Hall, T. L. Jackson, L. G. Knight and J. R. N. Pryde.

It was hoped that all Superintendents would join, and the Secretary was asked to write to all absentees requesting them to do so.

TRAVELLING EXPENSES.—It was decided that, instead of the former system of voting a lump sum when occasion arose, these should in future be on a fixed basis, and rates were then discussed and agreed upon.

RICE ISSUE.—The Executive Committee's letter regarding the proposal to fix this was considered, and it was thought that a universal estate rate of issue was not feasible. In this district alone there were five distinct groups or sub-districts where different conditions obtain, and conditions would vary so considerably between districts that the Association had yet to be convinced of the possibility of a standard rate of issue. The Honorary Secretary was instructed to write to the U. P. A. S. I. accordingly.

BANGALORE DELEGATES.—Messrs. J. P. Cook and R. Ross were elected.

ACCOUNTS AND HONORARY SECRETARY'S REPORT.—Copies of the accounts were passed round, and the Honorary Secretary read his report which was as follows:—

"Gentlemen,—The year ending 31st March, 1921 has been an eventful one for the planting industry, but it is quite unnecessary and out of place for me to talk about the unfortunate crisis in the tea and rubber markets.

The acreage subscribing to the Association was:—

Tea	4127·90
Rubber	6884·25
Total...	11012·15

and for the coming year the acreage subscribing will be 12·271 or, an increase of 1·259, chiefly rubber. This is not due to new members, but to extensions by estates now subscribing. Yields have not been returned for the past two years, but crop restriction is now generally agreed upon, and I would remind members that they are asked to give their rubber restriction figures monthly to the Rubber Growers' Association, through their Honorary Secretary.

It was hoped that the long-delayed Incorporation of the Association would be completed during the past year, or at least by this meeting, but through no fault of ours this could not be done, and the solicitors say that some time must still elapse before the Articles of Association are ready for signature.

The statement of accounts is now before you, and shows a deficit on the year's working of Rs. 1,275-3-7, which, deducted from last year's carry forward, leaves a balance in hand of Rs. 69-13 8. A donation of Rs. 250 was sent to the Benevolent Fund, and a badly needed new typewriter was bought, and in addition to these items, the subscription to the Lady Ampthill Nurses' Institute increased from Rs. 100 to Rs. 350 on the basis of Rs. 25 per estate, so that there was a heavy call on the Association funds, and subscription should be increased for the coming year.

Our thanks are due to Mr. Polson, who kindly audited the accounts.

I would thank members for their promptness in supplying any information asked for, and am much indebted to the Chairman for his help in all matters, and I now beg to tender my resignation as your Secretary."

Mr. Cook then vacated the Chair, and Mr. Jackson was voted to it to conduct the elections.

OFFICE-BEARERS.—The following were elected :—

Chairman	...	Mr. J. B. Cook.
Honorary Secretary	...	Mr. J. R. N. Pryde.
Committee	...	Messrs. L. G. Knight, G. McPherson, and T. L. Jackson.
General Committee	...	U. P. A. S. I. Messrs. J. B. Cook and J. R. N. Pryde.

Mr. Cook having resumed the Chair, amidst applause, said :—"Gentlemen, I think it is time you elected another chairman, but I thank you for the honor you have again done me, and will carry on for another year."

SUBSCRIPTION for the current year was fixed at 2 annas per acre, and the Secretary was authorised to call this up in one instalment at an early date.

There being no further business, the meeting closed with a vote of thanks to the Chair.

(Signed) J. R. N. PRYDE,
Honorary Secretary.

IMPROVEMENT OF OLD TEA ESTATES.*

BY J. W. MCKAY.

(*Tropical Life*, *April* 1921.)

Fluctuating markets, rises in costs of production, and modification in agricultural ideas have combined to force agriculturists in all parts of the world to take stock of their position, and to reconsider their methods of working.

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* We deem ourselves fortunate in having secured this article from Mr. McKay, one of our most experienced agricultural authorities in India, as can be seen by the way he puts his facts together and draws deductions from them as to what has or what will happen to the tea-producing industry as a result of the War. On this side as with all goods, epecially those dependent on tropical produce for their raw material, consumption is below zero, and so prices to the producer are altogether inadequate, but as we pointed out in our leader last month, when the thaw sets in and the ice of unemployment, restricted outputs, and retail prices at least 50 per cent. above what they should be, breaks up, such a demand will be let loose that will overwhelm us if we do not prepare to meet it in advance. Lack of employment must hit tea more than anything. Bread you must have, and then comes tea, but the quantities in both cases can be greatly decreased, whereas we want to see the demand extend.

In common with others, the tea planter has to face changed and changing conditions, and, although the outlook at this period of temporary depression is somewhat dull, the time is opportune to consider many aspects of the tea industry. For those of us who are more directly concerned with production, that side of the industry will no doubt make the stronger appeal. There can be no question of the stability of "tea" as a whole, although individual concerns may pass through difficult times, and it behoves us to make preparation for the better times that are in store.

With regard to many long-established estates, it may be advisable to give up cultivation of certain areas as being too poor ever to yield profitable returns, but the greater proportion may be retained as likely to respond to better methods of cultivation. There are few of the older tea estates that do not show signs of reduced fertility, partly due to that rapid decay of organic matter which takes place in all tropical soils, but perhaps more particularly owing to unrestricted wash that has been allowed to go on for years. The latter is much more serious than the former, because it generally means that all the fine soil particles formed by the disintegrating action of ages are irrevocably lost. Such surface soil once lost cannot be replaced in a hurry. When plenty of fresh land was available this deteriorated tea land was thrown out of cultivation, or to adopt the planters' term " abandoned." With the present dull times in the tea industry it is probable that this will be the fate of considerable areas of old tea land where the bushes are very old and of low " jat," and more especially if, as is usually found to be the case, a large proportion of bushes has completely disappeared. There is much to be said for this point of view, because, by adopting such a policy, labour and attention can be concentrated on the better areas which remain.

The deciding factors as to whether or not an area of old tea is worth renovating, or even retaining in cultivation are, first, the number of bushes per acre, and next, the " jat" of these bushes and their condition of health. In earlier days tea bushes were planted out at greater distances apart than is now customary, and consequently there was a small number of bushes per acre. If, in an exhausted soil, old and sickly tea bushes are struggling to grow, and if the number of such bushes is less than 1,000 per acre, it may be taken that the wisest plan is to cut the loss and abandon the area. If the soil is moderately good and the bushes healthy, it may pay to fill up vacancies or even to interplant between the existing lines of tea bushes. For this purpose strong two-year-old plants will be required. They should be carefully planted and assisted to establish themselves by being manured in the following year after planting, or, better still, for two years.

In undertaking the renovation of old tea, the first point is to stop all further soil wastage. When tea has been planted on hilly or sloping soils, the only effective means of preventing wash is by arranging an effective system of terraces. The growth of green crop, by increasing the quantity of organic matter in the soil, will bind together the small soil particles that otherwise would be easily carried away by the action of heavy rains, but unless terraces are constructed the loss of surface soil will continue. Where the slope of the soil is considerable narrow terraces will be required, and the cost of making them may be prohibitive. This is likely to be so in old tea only yielding a small crop. A simple, cheap and effective means of arriving at the same result is to sow the seed of one of the shrubby leguminous plants, e. g., *Tephrosia candida*, along the contour lines, and allow the plants to remain for several years in this position. The leaf fall during that period, together with the particles of soil which have collected around the roots, will then have formed an appreciable terrace. When at the end of that time the shrubs are cut away, a small drain can be made at the underside of the terrace and the excavated earth thrown up on it, and a fresh supply of seed sown. In this way effective terraces will be formed without any heavy initial expenditure. Rahor dhal will serve the same purpose as the Tephrosia. In flat lands there is little likelihood of serious injury from the surface soils being washed away, but as clayey and retentive soils are frequently to be met with in such situations, the question of adequate drainage requires close attention. A good supply of organic matter will tend to keep these soils open and friable and to allow the free passage of water through them.

Where it is found that the surface soil has been washed away and that the roots of the tea bushes are exposed, as they often are to a depth of 8 in. to 15 in., the only hope for improvement is to replace the lost material by carrying soils from the valleys or from nearby jungle. This is of course very expensive, and will only occasionally be practicable. Good results are sometimes obtainable by cutting pits among the tea and using the sub-soil from them to replace the soil that has been washed away. Again, this is an uncertain proposition. If the sub soil is of a fairly open sandy texture the work may be expected to be beneficial; if the sub-soil is of clayey or lacteritic formation, it is generally found that the latter state is worse than the former. Where it is proposed to adopt the method of using sub-soil, it will be found advantageous to cut contour drains and use the excavated material for covering the exposed roots. Such sub-soil has not got much available plant food, and is particularly wanting in organic matter. The cheapest method of supplying the needed organic matter is by the growth of green crops, but owing to the poverty of the soil it will be found difficult to establish these crops unless by the help of a cheap dressing of fertilizers. Bone dust at the rate of 200 to 250 lb. per acre will usually be of great assistance in getting green crops established under such condition.

Trenching is another important method of soil improvement which can be adopted with advantage on old tea lands. This work consists of cutting out small drains, usually to a depth of 18 in. and a width of 6 in. to 9 in., filling them with prunings or jungle growth and levelling back the earth. The value of the work will depend on two main factors: (1) The length of time the trench can be left open to the ameliorating influences of the atmosphere, and (2) the amount of vegetable matter that is available for burying in the trenches.

In earlier times collar pruning was almost the only known method of attempting to improve an old tea estate. When the bushes became worn out and refused to give a profitable yield they were collar pruned; that is to say, the tops of the bushes were cut off level with the soil. It must be admitted that the results were often surprisingly good, but unfortunately this method is not capable of indefinite expansion. Although the bushes may make an attempt to respond, they will ultimately be found to deteriorate very rapidly into a worse condition than before the collar pruning was done, unless this operation is accompanied by manuring and other ameliorative soil treatment.

Shade is an important factor in the health of the tea bushes. It now seems strange that this was not generally recognized until recently, seeing that tea was originally a plant of the jungle. Most of the older estates were planted out without any shade being provided, and, indeed, many are still lacking in this respect. The Dalbargias and Albizzias are suitable leguminous trees for planting among tea, and these trees not only produce a healthy shade, but by the fall of leaf and by the action of their roots quickly make a marked improvement on such depleted soils.*

If the deteriorated tea estates that we are considering are to be brought back to a profitable cropping condition, it will be found necessary to obtain some outside help in the form of manures. Unfortunately at the present time, when so many estates of this type are being run at a loss, little manuring expenditure can be undertaken, but it is to be hoped that times will soon so improve as to enable this to be done. Where the bark on the branches is dry and hide-bound, and where few or no young shoots are coming from below, or from the collar of the bush, it will be advisable to start with a quickly acting nitrogenous manure. The effect of this manure will be to produce a larger and heavier leaf growth and to encourage fresh shoots to burst from the "collar" and lower parts of the stem. When this result has been effected it will be possible to cut out some of the old and scraggy stems, and so give opportunity for healthy new shoots to take their place. Nitrate of soda or sulphate of ammonia applied at the rate of 100 to 150 ib. per acre will serve the purpose. If the soil is acid, as many tea soils are, the former is to be preferred as it reduces acidity, where sulphate of ammonia has the opposite tendency. These manures being readily soluble should be applied early in the season before the heavy rains are due.

In this connection it may be noted that the Scientific Department of the Indian Tea Association have reported that very good results have been obtained in recent experiments with nitrate of soda in tea. Indeed, the results are out of proportion to the nitrogen supplied by the fertilizer. This, the experimenters considers, may have been due to the action of the soda in liberating potash, or to the potash which is always present to some extent in this fertilizer.

Phosphoric acid can be supplied by a cheap dressing of bone dust which will assist the growth of green crops, and at the same time be helpful to the tea bush. Potash is not greatly required for Indian tea soils as most of them contain large quantities of this ingredient.

A recent writer, referring to the subject of tea manuring in Ceylon, says:—

" Finally there is the question of the proportion of nitrogen, phosphoric acid, and potash. The excellent results given by the ' Fraser mixture' prove that the originator was not far wrong when he prescribed approximately equal quantities of nitrogen and phosphoric acid. Where any deviation has been made from this proportion it has been in favour of a slightly higher proportion of nitrogen. As regards potash, however, the general consensus of opinion tends to show that this substance is of little value when applied to tea. For some time past a fitful correspondence has been carried on in the press concerning this question, but even the letters from those who are in favour of potash have been singularly free from anything approaching proof of its utility. At the same time, until the precise effect of potash on the tea bush is more clearly understood, it is generally agreed that it would be unwise to leave it out altogether.

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*Full details of the various green manures and the special advantages of each will be found in our book on " Green Manures and Manuring," by de Sornay.

An ingenious method of evading this question has been adopted by many planters during the last few years. A small quantity of sulphate of potash or sylvinite is included in their mixtures, and at the same time the nitrogen is supplied in the form of nitrate of soda. This policy makes use of the fact insisted upon by Sir A. D. Hall in his "Fertilizers and Manures," that the soda in nitrate of soda liberates potash from the insoluble soil compounds, and renders it available to the crop. At this point it would be well to summarize in order to get a clear idea of the features which must be possessed by a mixture which is to replace the old favourite.

"It is desirable that it should be less bulky.

"It must be substantially cheaper.

"Whilst retaining a certain amount of organic matter, the greater proportion of the nitrogen should be in a more readily available form

"It must be non-acid.

"It must contain approximately equal amounts of nitrogen and phosphoric acid, and a much smaller amount of potash.

"It would, of course, be impossible to lay down the composition of all the new mixtures which have been devised to replace the old one; their name is legion. The following is, however, typical of many of those which have found considerable favour during the last few years:—

	Nitrogen	Phos. acid	Potash
lb.	lb.	lb.	lb.
200 Fish guano ...	15	17	...
200 Nitrate of soda ...	30	...	...
100 Ephosphosphate ...	...	30	...
50 Muriate of potash ...	...	...	20

" Application : 550 to 750 lb. per acre.

" This mixture is much more concentrated than the old one, and therefore much less bulky, at the same time it is much cheaper ; indeed, it answers remarkably well to the conditions set out above, which no doubt accounts for its increasing popularity."

This application will probably be too expensive for Indian ideas, since smaller applications of manure than are used in Ceylon are the rule, but a smaller quantity of the same mixture can be relied on to give profitable results.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" COFFEE.

(BY CABLE.)

LONDON, DATED 27TH MAY, 1921.

109s. per cwt. Market Firm.

THE U. P. A. S I. BUYING AGENCY.

The Secretary, U. P. A. S. I. issues this week a circular letter to all planters, enclosing a note regarding the proposed UPASI BUYING AGENCY which will no doubt come as a welcome relief to the many who are suffering from the exorbitant prices levied by some firms in India for all classes of merchandise. The times are such that, even for such a money saving scheme as a full pledged co-operative society, it is difficult, if not impossible, to raise the capital necessary to ensure successful working, and this Buying Agency represents the ideal half-way house, the one means at hand for the moment of reducing, by co-operative buying, the cost of living.

Since a copy of the scheme has been sent to every planter in S. India it is not necessary for us to reprint it here *in extenso*, but we would like to draw attention to a few salient points of the scheme, and will gladly open our pages to correspondence on the subject for the benefit, of those who may find some of the points obscure, or who may seek further information before joining the Agency. The great feature of the idea to our mind is its simplicity. To cover working costs, which are absurdly low, a fee of Rs. 10 per annum is to be levied from each member, and, in return for this ridiculously small sum the Agency will receive indents from its members and place their orders, as requested, either in India, or in the United Kingdom. It will obtain for them the best discounts possible in India, and the lowest manufacturers' Trade rates in the U. K. The root of the idea is "purchase at home," but this necessitates payment in advance, and, for those who cannot afford to have their money locked up for the period which must elapse between placing the order and receipt of the goods, arrangements have been made with certain local firms for special terms to be quoted.

The procedure is simple. The member sends his indent to the Agency, which endorses it and passes it on to the firm in question. The goods are sent direct to the member, by Rail or Post as directed, and payment takes place direct, the Agency not being in any way responsible for payment, loss, or damage, etc. This is for goods purchased in India. Orders to be placed at home must be sent to the Agency together with a remittance to cover estimated cost. Orders will be sent home periodically, and if in small quantities will be bulked and re-distributed on arrival at Coimbatore. Large consignments can be sent direct from home to the purchaser.

There is no doubt whatever of the immense possibilities of this scheme, and the subscription is so low that it will be saved over and over again by most members even dealing with, say, only one firm in India. The Home orders will show an enormous saving to the purchaser, and naturally, as in all cases of co-operation, *the more people there are in the scheme the greater the saving.*

As the Secretary points out in his letter, the complaint is constantly levelled against the U. P. A. S. I. that it does nothing for the individual planter. Here is a chance to prove that it can be of immense use, and can save him, probably in a year, as much as he pays in subscriptions to the U. P. A. S. I. for all its other work. To this end we hope there will be no backsliding, no waiting to see how it will pan out, an attitude so typical of the average planter. A saving of from 15% to 30% on local prices can be obtained by purchase at home; some consideration in these days of unstable exchange and consequent rising prices in India. Even in this country the discounts offered to purchasers through the Buying Agency range from anything up to current trade rates, and one month's credit, so that he who looks twice at his Rs. 10 subscription is running the risk of being left.

We repeat, here is a chance offered by the U. P. A. S. I. to prove its usefulness in a most practical way it would be folly not to take advantage of it.

NILGIRI PLANTERS' ASSOCIATION.

AT THE ANNUAL GENERAL MEETING OF THE ABOVE ASSOCIATION, HELD AT OOTACAMUND, ON 5TH MAY, 1921, THE FOLLOWING MEMBERS WERE PRESENT.

PRESENT.—Messrs. J. B. Vernede (in the chair), W. A. Cherry, J. Harding Pascoe, Capt. E. G. Windle, J. B. Leslie Rogers, A. S. Dandison, M. J. L. Hayne, G. F. Weston Elwes, A. K. Weld Downing, W. C. Deane, E. Sydenham Clarke, C. Hercus, R. N. C. Grove, G. Brameld, and A. N. Hearn (Honorary Secretary.)

Visitors:—Mr. W. G. McFarlard, Collector, the Nilgiris, Messrs. H. C. Price and S. Grove.

THE LATE MR. A. M. KINLOCH.

The Chairman spoke as follows touching the death of the late Mr. A. M. Kinloch.

It is with much regret I have to inform you of the death of Mr. A. M. Kinloch. He was killed by a boar at Kotagiri on Tuesday the 3rd. He went in after the beast into thick cover, and was charged at close quarters, knocked over and ripped up. He was a Nilgiri Planter for many years, but for the past ten years or so he has been on Palagapandy Estate, Nelliampathies. Those who had the pleasure of knowing him knew him as one of the best, a keen and good all round sportsman and a most open hearted and generous friend. He leaves a widow, four daughters and a son, and I trust, gentlemen, I have your whole-hearted support in asking our Honorary Secretary to express our sympathy to his family. The resolution was carried, all members standing.

Notice calling the meeting was read.

Proceedings of the Meeting of 3rd February, 1921 were taken as read, and confirmed.

CHAIRMAN'S REPORT.

The Chairman made the following remarks with regard to the year's work:—

"I don't propose, gentlemen, to take up your time in recapitulating the events of the past year. We have passed and are passing through very anxious times, and can only hope that these will soon pass and be succeeded by a long period of prosperity for all. Our Honorary Secretary will give you details of the working of the Association. Our acreage was decreased slightly by the withdrawal of two estates, of which one was sold to an Indian. Two other estates have not paid subscriptions due to either the U. P. A. S. I., or to this Association. Not being incorporated we cannot enforce payment, but have to leave it to the honour of proprietors or agents to pay. They joined upon the distinct understanding that they would continue to be members for a fixed period of five years and to pay the agreed subscriptions, and I trust the owners of the two estates concerned will reconsider the matter in this light, and pay the arrears due by them.

At our last General Meeting a resolution was passed requesting the President of the District Board to appoint named members to fill existing vacancies on the Board, so that all parts of the District might be represented by members of the Association. This resolution was forwarded by our Honorary Secretary, and two reminders sent. No reply has been received to any of them. Mr. McFarland, who is present here, has kindly promised to look into this matter, and to do all in his power to help.

This is essentially a Planting District, and formerly our community was adequately represented on the Board, but at present we only have one representative, owing to vacancies not having been filled. Resolutions affecting us have been passed by the Board, and are now in force without our having an opportunity of expressing our views. For instance, toll fees have been raised. This mainly hits the Planter who has to move about on business. If he has to use pack Transport it hits him again. Non-Planter residents and visitors to the hill stations are not much affected, as they seldom pass through the tolls, except on pleasure, and no one minds paying a little for pleasure, but extra costs in business in these hard times do hit us badly.

Gentlemen, I thank you for having done me the honour of electing me as your chairman. I now place my resignation in your hands. I wish to express my thanks to our Honorary Secretary in particular, and to members of the Committee for the real help they have accorded me, which have made my duties lighter and most pleasant."

ANNUAL REPORT.

The following annual report was read by the Honorary Secretary, and adopted:—

Mr. Chairman and Gentlemen:—I have the honour to submit my report for the year ending 31st March, 1921.

During the year under review there were three General Meetings, at which the average attendance was sixteen. This can be improved upon, as, with 39 members, the attendance ought to be greater. I hope my successor will be able to give a higher average at the end of the next twelve months. The acreage of estates on the books of the association for the year 1919—20 was 11·312. I regret that two estates, comprising 217 acres, have to be deducted, leaving only 11,095 acres on the books.

No new estates have joined this year, but I trust the few that have not will do so during the next twelve months.

Before going any further I should like to take this opportunity of tendering my grateful thanks to the Chairman and Committee for their ready help and advice, and also all members for their loyal support. I will now touch on some of the matters that were dealt with during the year.

S. I. P. B. Fund.—I must thank those members who have met my appeals as they should. I think all planters ought to support this fund, and should like to see every member a subscriber.

Policing of Coffee.—Our thanks are due to the District Superintendent of Police for the special staff of constables placed at our disposal every coffee season.

INFLUENZA.—I am glad to report that this disease has not appeared in epidemic form again, as in previous years, and trust we shall not see a recurrence of this pest as in 1918—19.

ROADS AND COMMUNICATIONS.—This matter is of interest to all. As regards our district roads there is still room for further improvement, especially in the strengthening of bridges to take heavier traffic. I would like, on behalf of members, to thank Mr. J. F. Bryant, our late Collector for his kind permission to use his office for our meetings, and the thanks of the Association are due to him and Mr. Wells, Sub-Collector, for their unfailing courtesy and interest when dealing with planting matters.

STATEMENT OF ACCOUNTS.—I regret I am unable to hand you the usual statement of accounts for the year to-day, as, owing to a misunderstanding, I prepared these from the 1st July only, from the date I took over, and on asking a fellow member to audit these accounts yesterday, he pointed out that they should have been prepared as from April 1st, 1920. Consequently I have no option but to ask you to allow these to stand over for a few days, when they will be circulated to all members. As regards the local Association subscriptions for 1921—1922, although our credit balance is satisfactory, I strongly recommend that the subscriptions of 0-2-6 annas per acre be again levied in view of the costs of incorporation, which will have to be met some time this year. They show, as at the 31st March, 1921, a credit balance of Rs. 4,690-8-6. Rs. 3,726-6 0 of this has since been paid to the U. P. A. S. I., leaving a credit balance of Rs. 964-2-6. Receipts for April amount to Rs. 42-8-0. This, added to the credit balance shown on the 31st March, totals Rs. 1,006-10-6. Expenses for April are Rs. 90-10-10, which amount, deducted from Rs. 1,006-10-6, leaves the credit balance of Rs. 915-15-8. There are still outstanding subscriptions to be collected amounting to Rs. 2,934-2-6.

In conclusion, gentlemen, I thank you for the honour you did me in electing me as your Honorary Secretary. I now place my resignation, with that of my Committee, in your hands.

DISTRICT BOARD TOLLS.—With reference to the raising of District Board Tolls, Mr. Elwes referred to a letter he had written to the "South of India Observer," and said that it was but just that the Board should compound with planters. They were not using their cars for pleasure, and the enhanced toll was a heavy tax on all planters. Mr. Elwes also questioned the wisdom of charging the maximum rate leviable. Mr. Dandison, who was the only member of the Association on the District Board, said that he had opposed the increase. It was pointed out that all the toll gates had been sold, and it was doubtful whether the Board could now compound with planters. Mr. Dandison said that when auctioning the gates Mr. Wells had made a stipulation to this effect. Mr. McFarland, who was present, said he would look into the matter, and see what could be done.

SURCHARGE ON PLANTATION GOODS.—With reference to the surcharge on plantation goods passing over the Railway, Mr. Downing proposed the following resolution, which was seconded by Mr. J. H. Pascoe, and carried :—

"That this Association requests the U. P. A. S. I. to approach the Railway Board with a view to obtaining the same concession for "Plantation Goods" carried over the Indian Railways as is the case with food-stuffs, firewood and fodder, which are not subject to the surcharge of annas 0-2-6 in the rupee. "Plantation Goods" to include all packing materials, manures, tools and machinery usually used in agriculture, also all consignments of tea."

In moving the resolution Mr. Downing spoke and said that tea was already heavily taxed, and this further charge would tend to reduce tea sales. Mr. Pascoe pointed out that the goods in question were being carried over the railway twice, namely, the packing materials, etc. were carried back over the same railway with the manufactured article. This point deserved the consideration of the Railway authorities.

OFFICE BEARERS.

The following office-bearers were elected unanimously :—

Mr. J. B. Vernede ... Chairman.

Mr. J. Harding Pascoe ... Vice-Chairman.

Mr. A. S. Dandison ... Honorary Secretary.

COMMITTEE :—

Mr. W. A. Cherry.

Mr. E. Sydenham Clarke.

Mr. G. F. Weston Elwes.

Mr. A. K. Weld Downing.

Mr. J. Harding Pascoe (Vice-Chairman.)

Mr. A. S. Dandison (Honorary Secretary).

U. P. A. S. I.

Messrs. A. S. Dandison, A. K. Weld Downing and E. Sydenham Clarke were elected as the Nilgiri delegates of the U. P. A. S. I.

Messrs. A. S. Dandison and J. B. Vernede were elected to represent the Association on the U. P. A. S. I. General Council.

VOTE OF THANKS.

With a vote of thanks to the Chairman and to the Collector for the use of the room, the meeting terminated.

(Signed) J. B. VERNEDE,
Chairman.

(„) A. N. HEARN,
Honorary Secretary.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA

SECRETARY'S REPORT No. 19.

Coimbatore,
25th May, 1921.

EXECUTIVE COMMITTEE.—Mr. P. G. Tipping having gone Home, Lieut.-Col. W. L. Crawford has become Active Member for Coffee on the Executive Committee in his place. The Executive Committee have elected Mr. C. Lake, Saklaspur, to be Member-in-Waiting for Coffee in place of Lieut.-Col. Crawford.

UPASI BUYING AGENCY.—The Executive Committee have approved of the proposed Buying Agency scheme. A Circular with reference to this is now being printed, and a copy will be sent to every member of all District Associations.

RUBBER MYCOLOGIST.—Mr. Ashplant arrived in Coimbatore on the 20th instant, and on the 22nd proceeded to Calicut to meet Mr. R. D. Anstead, who will take him on tour with him, and will take him up to Mundakayam to visit the Mycological Station there.

RUBBER BROKERAGE.—In October last the Council of the Rubber Growers' Association announced that, in view of the heavy increase in office rent, salaries and general office expenses, the business in Spot-Rubber was unremunerative, and the Brokers' request for an advance in the brokerage from ½% to 1% on Spot-Rubber in London was fair and reasonable. This gave rise to a number of protests on the part of members, which caused the Council of the Rubber Growers' Association to reconsider the matter at a meeting held on the 4th of April last. The Committee of the Rubber Growers' Association adhered to the conclusion set forth in their previous report, and the following resolution was carried *nem con*:—

"That the recommendation to increase brokerage to 1% for selling first hand spot rubber be approved."

(Signed) C. H. BROCK,
Acting Secretary.

Coimbatore,
1st June, 1921.

SECRETARY'S REPORT No. 20.

1. INCREASE OF TEA CESS.—On the 28th of April your attention was drawn to the fact that South Indian Ports were levying the maximum cess permitted under the Indian Tea Cess Amendment Act, although no orders had been received from the Government of India at that date as to how much cess should be levied. The Indian Tea Association was addressed on the subject, and they very kindly communicated with the Collector of Customs, Calcutta, who replied as follows:—

> "Regarding the collection of cess between 2nd of March and the end of April, I have the honour to say that I have forwarded to the Collector of Customs, Madras, a copy of the orders under which the cess was collected at this Port at the old rate of a ¼ pie per lb. until the 30th of April, and I have no doubt that, as a result, the excess collections will be refunded by the Madras Customs House."

The Collector of Customs, Madras, has been communicated with direct, with a view to ascertaining what steps are being taken for refunding the excess of cess collected on shipments of tea in March and April.

2. HOME INCOME TAX ACT, 1918, SECTIONS 43 & 44.—These sections were revived first in 1914, to assist the tax-payer when threatened with a serious dimunition of profits following the outbreak of war, and were to continue in force as long as included in any subsequent legislation. By the Finance Act 1919, Section 15, the relief was specifically continued for the fiscal year 1919-20, but in the Finance Act 1920 there was no express reference to Section 43 of the Income Tax Act 1918, but the general wording of Section 14 continuing in force, all enactments having effect for the fiscal year 1919/20 were considered sufficiently wide to render Section 43 still operative. In order to have the point cleared up, the various Associations in London representing planting industries accepted the case of one Company as a Test Case. This case came up for hearing before the General Commissioners of Income Tax of the City of London, and though their actual decision will only be known by next mail, it was expected that they would decide in favour of the Company. In the meantime the budget resolutions passed on the 25th April, which render these sections inoperative retrospectively for 1920/21, are likely to deprive Sterling Companies of any benefit that may arise from the General Commissioners' decision. The South Indian Association is now drawing up a memorandum for submission to members and shareholders, with a view to their urging Members of Parliament to oppose the clause in the forthcoming Finance Bill, which would make these sections inoperative retrospectively.

(Signed) C. H. BROCK,
Ag. Secretary, U. P. A. S. I.

COFFEE PLANTING IN COORG.

By "PLANTER."

The first mention of coffee cultivation in Coorg is of a concession of land made by its last Rajah to some Moplahs-Musulmen from the West Coast—who managed to keep the monopoly of growing the fragrant berry in their own hands by working on the superstitious fears of the natives of the Province, and it was not until the country had been opened up by European enterprise that the natives were emboldened to embark in the Industry. Some of the original trees, which supplied the seed for the planting up of the earlier states, are still extant in the Nalkanad part of the Province. Growing near a village from which they received ashes and other refuse, they are splendid specimens, and are still very fruitful.

The first European estate was opened in 1845, about three miles from Mercara, the chief town in Coorg, and was named after it. It is, however, known to the natives as "Malakalmoori", literally "break-knee"; and thereby hangs a tale. It is related that, when the invading British forces were nearing Mercara, a younger brother of the late Rajah fled by way of the Mercara estate, and in making his way down a steep slope he slipped and dislocated his knee. The place proved eminently successful.

It was eventually relinquished to Government by the original proprietors about the middle eighties after having, I believe, turned over the capital invested in it four times. The Government sold it at auction, and some Indian capitalists became its possessors, and, I believe, it continued to prove a first class investment to them for some time subsequently.

In 1856 an influx of planters into the country occurred, and soon afterwards operations for opening up estates on the Ghauts were commenced. Inexperienced as these pioneer planters were, they considered the heavy forests on these steep slopes, with an average annual rainfall of 200 inches, "the land of promise," in the words of an old writer. The late Mr. R. H. Elliott, the well known Mysore planter, who passed through the country on his way to Mangalore at this time, noted and deplored the fact that, unlike their confreres of Mysore who planted coffee under the original forest trees, these planters were making the fatal mistake of introducing the Ceylon practice of cutting down every tree and making a complete clearance of the land prior to putting down the coffee. However suited this was to the humid climate of Ceylon, it was fatal in a climate where droughts commonly extended from the middle of November till the following March, or April.

The ephemeral nature of the investment on steep forest lands was soon manifest, for, with the rapidly disappearing surface soil accelerated by the method of cultivation, which consisted of scraping the weeds and burying them, thus exposing the soil to be washed away, the coffee deteriorated. and, in planters parlance, "went out." In one case where the different method of pulling up the weeds monthly by hand before they had made much growth, till the land got covered with what was known as a mossy fern, matters were not improved as regards prolonging the life of the estate. In this case the soil became so hide bound as to preclude the possibility of its being aerated, and this naturally proved prejudicial to the coffee. The average duration of the properties on the Ghauts, as the hill slopes situated on both sides of the roads leading down to Mangalore and Cannanore were called, was approximately 25 years; yet they were very fruitful during their early years, and I have heard of cases where, owing to a shortage of labour, one bushel in every three gathered was paid away to get the crop harvested. Neighbours who were better off in respect of labour readily availed themselves of this handsome remuneration.

In the early eighties these Ghaut places were largely planted up with Cinchona, chiefly the inferior variety. Later, in the middle eighties, they were also largely planted up with Ceara rubber; but though both products throve, they did not succeed in staving off the abandonment of the properties, which was completely effected by the close of the eighties, except that two or three places on the Cannanore Ghaut were kept up for some time longer. Tea was also planted on abandoned coffee land on the Mangalore Ghaut, and promised to be a success, but an incursion of fire into the weeds, which had then become dry, left to protect the tea plants during the hot, dry months (which Mr. J. Cameron, late Superintendent of the Mysore Government Botanical Gardens thought was proving most beneficial to the young tea) completed its destruction. In the nineties a Ceara plantation was opened down the Mangalore Ghaut, but Ceara rubber has never fulfilled the expectations entertained of it.

The comparatively low lying undulating land covered with bamboos, interspersed with forest trees, lying to the south of the province, with an average annual rainfall of 70 inches, and called the Bamboo, was in those early days considered unsuitable for coffee: but the Revd. Mr. Kaundinya and Messrs. D. Rose and Minchin, who received free grants of land, Government being desirous of encouraging the development of lands lying waste in South Coorg, were soon able to demonstrate the profitableness of coffee culture in the Bamboo district. On one occasion the first named gentleman's estate produced a ton per acre and 12 and 15 cwts. per acre were not uncommon. It was then "discovered that Ghaut cultivation was a delusion," and a rush took place to the Bamboo, where, in consequence, land rose enormously in value Planters who owned land on the Ghauts were allowed by Government to relinquish it in exchange for an equivalent area of land in the Bamboo ; but the concessionaire had to pay for the timber on the Bamboo land, and the full assessment of Rs. 2 per acre from the day he took possession as against Re. 1 from the 5th to the 9th year, when the land was purchased at auction. This exchange of land was opposed by those planters who had no land to exchange ; but on the principle that, in cases of hardship and loss, landholders were entitled to special consideration, Government allowed the concession.

The mistake was continued in the Bamboo of growing coffee without shade, doubly fatal there owing to the ravages of the Borer insect (*Xylotrechus Quadrupes*), which, under the favourable conditions which obtained under the circumstances—as its eggs are hatched by the sun during the cold weather—multiplied unchecked. Mr. D. Stewart, known as the "Coffee King," and perhaps the largest individual owner of coffee properties in Southern India, was rigorously opposed to growing coffee under shade. It was a standing rule on his estates that, if a superintendent allowed anything except coffee to grow on the land, he would be dismissed. But when practically whole estates were wiped out about 1866, both he and the then other planters in the District were impressed with the necessity of providing shade for the coffee; thereafter jungle plants springing up spontaneously in the coffee were left to develop into trees, and a lot of seeds and cuttings, chiefly of the ficus species, were planted at regular intervals throughout the fields of coffee. This is hardly the same thing as planting under original forest trees ; for in the latter case the burn is not so severe as to destroy much of the humus of the soil, while in the former, where the jungle is entirely felled and burned, the fire is so fierce as to calcine the organic constituents of a couple or three inches of the surface soil, thus proving most prejudicial and injurious.

Though shade does not, as was surmised by the planting author Hull and other planters that it would, keep borer out of estates, it helps to keep it in check. But the losses caused by the pest are so severe year by year, despite the fact that coffee throughout the Bamboo has been grown under shade for so many years past, and despite the other measures taken to combat the scourge, that the above averment might well be questioned by the uninitiated. It is calculated that, owing to the losses from borer, one-third of the area of estates is constantly under immature plants, but without shade and with neglect of the other measures to combat the pest, there would be a risk of the whole area being destroyed. It is noteworthy that the measures to be adopted against the scourge advocated by modern scientists are practically the same as those recommended by Dr. Bidie, who was deputed by the Madras Government, after the severe visitation of borer in 1866, to investigate it. These consist of scraping the stems of the trees prior to the season of the laying of its eggs by the borer, which would be August and September, with the object of destroying all lodgement for the eggs, as the eggs are laid in cracks and fissures of the bark ; of continuing the scraping later if it cannot be finished at the proper time, with the object of destroying first the eggs, and next the grubs ; of painting the trees with a suitable insecticide ; and, finally, of eradicating and burning all affected trees with the object of destroying grubs secreted in the centre of the stems. It was discovered that October was the chief borer flight season, that is when the insects had reached the imago state and emerged from the trees, by setting on coolies to catch the beetles and paying 3 pies for each, for by far the most beetles were brought in during that month. By confining male and female beetles in a large lantern, and supplying them with coffee stem, it was discovered that a female laid 100 eggs before it ceased to exist, and in the same way it was found that the hatching period was principally December, therefore shade trees which lose their leaves during the cold weather are no protection against borer.

The estates in Bamboo are largely planted up with pepper, and, as the cultivation of the coffee practically suffices for the vine also, and the only expense incurred in connection with it is for gathering the crop, the income from the produce is almost clear profit.

Unfortunately, during the rush for land in the Bamboo, in several cases unsuitable land was planted up. This has long since been abandoned, and much of it put under Ceara rubber. After nearly half a century, the coffee in the District is showing signs of deterioration. What is required is that the land, as in the case of Mysore, should be replanted with a new variety of coffee. This is being done in some cases with robusta coffee, but what is wanted is a variety which will produce a good quality of bean. Perhaps the Jackson hybrid and Kent's Arabica will fill the role.—*Indian Scientific Agriculturist.*

TEA HELOPELTIS.

The study of insect pests has too often been undertaken without reference to the proper study of the plants upon which they feed, and the other environmental factors affecting their life-histories. The spraying machine was looked upon as the solution of all problems, and many wild and impracticable remedies were often suggested.

Of late years there has been a world wide tendency to approach the subject of insect enemies of plants from another angle. The necessity for a complete study of the affected crop equally with the insect attacking it is more fully realised. There are many possibilities now opening out, giving those whose work it is to protect the crops, far greater hope of a successful issue to the struggle.

There is some indication that resistant varieties of at least one crop may be found, although work in this direction is still in its infancy so far as insect enemies are concerned. What is known as biological control of pests is being studied and the technique much improved, and in some parts of the world the use of insects to control insects is proving a success. There is another point from which insect pests can be assailed, and that is through the plant itself. An analysis of a particular crop might reveal some substance which may be used to bait a trap of a pest, or as a repellant to keep it away from that particular crop.

It is a matter of common observation that a sickly crop suffers more from insect pests than one which is healthy. Where more study is required is in investigating the nature of the sap in sickly plants and finding what it is that makes them more attractive to insects when they are in bad condition than when they are well. Many factors may cause unhealthiness, and what each particular kind of unhealthiness is, requires to be studied.

Mr. A. E. Andrews, Entomologist to the Indian Tea Association, has been studying for some years the problem of mosquito blight on tea, and a brief summary of the most interesting results which he has obtained are given in the Quarterly Journal of the Indian Tea Association. The experiments are still in progress, but it might be of interest to tea planters in South India to know what is being done to deal with Helopeltis in Assam. At the same time it will give an interesting side light on the sort of problem with which an economic entomologist is confronted, and how necessary it is to take into consideration all the environmental factors of a crop and its enemy.

The results attained by Mr. Andrews amount briefly to this, that the resistance of tea bushes to mosquito blight is directly proportional to the available potash in the soil, and the power of the bush to assimilate it. Recently experiments have been carried to a successful issue in which bushes apparently destroyed by mosquito blight beyond recovery have been resuscitated and given a good flush. The recovery was brought about by direct inoculation of potassium salts.

Trees treated in this way have remained resistant although in the middle of others heavily infested with Helopeltis. Cases of insects alighting on the bushes and leaving them after one or two trial feedings were seen. This means that bushes so treated were actually distasteful to their worst enemy. Here, then, was a definite cause of unhealthiness, namely a deficiency of potassium salts, due either to an insufficiency of potash in the soil, or inability on the part of the plant to make use of it. This is a discovery of very great importance, for in one case at least an attractive or repellant factor has been found, and it is certainly only the beginning of a new line of study in plant pathology.

The whole problem is still under investigation, but Mr. Andrews is following up a most original and interesting line of researches. which should go far to settling the problem of mosquito blight in Assam. Emphasis must be placed on the words "in Assam," for what may solve the problem in Assam will not necessarily solve it in South India. In the first place the mosquito blight of South India is not caused by the same insect as in Assam. There they have Helopeltis *theivora*, whereas the South Indian Helopeltis is most probably *antonii*. It by no means follows then that *Helopeltis antonii* will be repelled in the same way as Helopeltis *theivora*. The writer has not yet had an opportunity of studying the problem in South India as the claims of the Pink boll worm have been paramount, but planters whose estates are afflicted by Helopeltis can solve one problem at least by sending specimens of Helopeltis so that the question *antonii* or *theivora* can be settled, and later on as time permits, it may be possible properly to investigate the whole matter.

(Signed) E. BALLARD,

Entomologist, Government of Madras.

INDIAN TEA ASSOCIATION.

ABSTRACT OF PROCEEDINGS OF A MEETING OF THE GENERAL COMMITTEE, HELD AT CALCUTTA ON 10TH MAY, 1921.

CORRESPONDENCE WITH THE INDIAN TEA ASSOCIATION, (LONDON.)—A letter, dated 14th April, from the Indian Tea Association, (London), which had been circulated to the Committee, was now to be recorded. The principal subjects dealt with in it were:—

(*a*) *The Indian export duty on tea.*—In connection with this subject the London Committee mentioned that they had again addressed the Secretary of State for India emphasising, in the present state of the industry, the urgent importance of withdrawing the export duty as soon as possible. The letter was as follows:—

With reference to your letter R. & S.-138-21, dated the 3rd March, 1921, relative to the duty on tea exported from India, my Committee have noted with much regret that the Government of India are precluded from considering proposals for the remission of existing duties owing to the unfavourable situation disclosed in the Indian Budget.

Had the position of the tea industry been less grave than it is, my Committee would have felt impelled to acquiesce in this view of the case. But the industry is, at the moment, so seriously menaced by the fall in prices which has resulted from the collapse of the Russian and Continental markets for tea that it was considered necessary to make further representations regarding this duty.

In view of the urgency of the matter, the Chairman and Vice-Chairman of this Association waited upon Sir William Duke on the 24th ultimo, and emphasised the inequity of the tax, and I am desired now to put on record their main contentions:—

(*a*) That an export tax imposed on tea which is not realising the cost of production is, in effect, a tax on the wages of the coolies, and, therefore, economically and politically harmful. This has already been indicated in letters which have appeared in the Indian press.

(*b*) That the tax is imposed at a fixed rate per lb. irrespective of quality.

It is well-known that the tea produced in the different districts of India varies in quality and, consequently, in price. This is illustrated by the fact that, of 18,175 chests of tea sold in auction in Calcutta on the 22nd February last, the District averages varied from as. 7/3 per lb. for Darjeeling teas to as. 3/0 per lb. for tea from the District of Chittagong. The uniform duty per lb. represents 3% on the former price, and 8% on the latter; that is to say, the heavier burden falls on the tea which is least able to bear it. Then, common leaf teas are at present quoted at as. 1/6 per lb. in Calcutta. On this price, the tax is equal to 17%. There is, it is urged, no equity in such taxation. As more than three-fourths of the tea produced in season 1920 is selling at a loss varying from 3*d*. to 6*d*. per lb. my Committee, therefore, support their representatives in urging that the matter of the export duty be reconsidered, and that, if financial exigencies render it impossible to abrogate it, its incidence be modified so that no tea exported from India shall be taxed in a percentage on its selling price so unfair as the above mentioned.

In view of the preceding, it is expedient, in the interests alike of the Indian labourer and the employer, to urge the Government of India to abrogate the duty and, should this be impossible, at least to modify the method of imposing it. A representation in this sense has been cabled to the Indian Tea Association, Calcutta, with a request to communicate it forthwith to the Government of India, and I am to express the hope that you will support the representation on the equities of the case.

The Committee had noted the terms of this letter. As has been explained in past proceedings, they recognised that, in view of the budget having been adopted by the Indian Legislature, nothing further could be done towards having the burden imposed by the export duty removed for the current year; but they hoped it would be possible to put such a convincing case in favour of the removal of the duty before the Fiscal Commission to sit next cold weather, that there would be every hope of having it withdrawn. The suggestion made by the London Association that the method of imposing the duty might equitably be modified was in line with the views expressed by the Committee at their meeting on 12th April, 1921, when, however, they stated two great difficulties in the way of a re-arrangement of the basis of the duty, the principal one of which would be the difficulty of obtaining unanimity among producers to the proposal that the duty should be graded in accordance with the values of the tea.

(*b*) *Exports from Northern India to the United Kingdom.*—The London Committee commented on the fact that the total exports from Northern India to the United Kingdom during March amounted to over 24 million lbs., or 4 million lbs. more than the quantity recommended by them as being the maximum which the London warehouses could deal with.

The Committee noted these comments. They had already observed, of course, that the exports were in excess of the amount recommended by London, but in the absence of any agreement to restrict shipments it had not been possible to ensure that this amount should be adhered to. On the other hand, the exports during April from Northern India to the United Kingdom were less than 14½ million lbs. As explained in the proceedings of last meeting, the Committee considered that shipments during May were hardly likely to reach 20 million lbs. although clearances during this month from Chittagong might be large in consequence of the second April steamer having been put back until early May.

RESTRICTION OF 1921 CROP.—In a letter of 5th May, Messrs. McLeod & Co. referred to the outlook for the current year. So far from improving, the market for common teas had continued to decline, and they suggested that a further effort should be made to bring the supply of tea down to the level of the demand. Assam gardens and a few others capable of making good quality tea, were, it was known, not disposed to join in any scheme for reducing the crop, but there did not appear to be any reason why a reduction should not be mutually arranged by concerns in the Sylhet, Cachar, Dooars, Chittagong and Terai districts, *i. e.*, all districts of North-East India excluding Assam and Darjeeling. To be effective, the reduction would have to be at least 30%, and the request was made that the Committee should consider this proposal with a view to cabling the London Association regarding it. Reference was made to the fact that other industries, both in India and at home, were taking stringent measures to prevent over-supply and it was urged that the time had come for the tea industry to adopt a similar precedure.

The Committee discussed this proposal at considerable length. They were inclined to think that concerns—particularly those in the districts specially referred to by Messrs. McLeod and Co.—fully appreciated the necessity for restriction. It was believed that throughout the Surma Valley and the Dooars drastic restriction was expected—to a greater extent, that is to say, than was indicated by the figures recently collected by the Association, putting the estimated reduction at 13/14% on the basis of the average production for the five years, 1915—1919, inclusive. To some extent this would be achieved by finer plucking as it was clear that on this basis only would paying prices be obtainable; and, as regards the Surma Valley the recent developments in connection with labour difficulties would probably have a material effect on the crop. On the whole, in the circumstances explained, and in view of the likely objections to a proposal for reduction in the districts specified, while leaving others free, the Committee were doubtful as to the expediency of suggesting to members a definite agreement on the lines proposed. They decided, however, to forward to the Indian Tea Association (London) a copy of Messrs. McLeod and Co.'s letter, together with a copy of their reply.

RESTRICTION OF TEA: OUTPUT IN NON-BRITISH COUNTRIES OF PRODUCTION.—In the proceedings of the meeting, held on the 12th April there was quoted a telegram received by the Director-General of Commercial Intelligence from the British Consular authorities at Peking giving particulars of the position of the tea crop in China. With a letter, dated 26th April, the Director-General of Commercial Intelligence now forwarded copy of a memorandum on the estimated tea production in China during the current year received from His Majesty's Commercial Counsellor at Shanghai in amplification of the above mentioned telegram. The memorandum had been read with interest by the Committee. A copy had been sent to the Indian Tea Association (London) for information, and it was now to be recorded.

THE TEA CESS: *Increase of the tea cess.*—In the proceedings of the 26th April, there was published copy of a notification by the Government of India, Department of Commerce, which stated that, in accordance with the powers granted under the recent enactment of Act No. I of 1921, amending section 3 of the Tea Cess Act of 1903, the rate of the tea cess would be 4 annas per 100 lbs. with effect from the 1st May, 1921. A letter, dated 28th April, had been received from the United Planters' Association of Southern India stating that all tea shipped from South Indian ports from the 2nd March up to the end of April was being taxed at the rate of 8 annas per 100 lbs—that is to say, the *maximum* rate leviable under the amending Act—and asking that the Committee should take up the matter with Government. The position, of course, so far as Northern India ports were concerned, was that the cess was levied at the old rate, ¼ pie per lb., up to the 1st May, and the Committee addressed the Collector of Customs, Calcutta, asking him to be good enough to explain the position to the Collector of Customs, Madras; for, as they pointed out, it was undesirable that different rates of cess should be in force at different ports during the same period. The Collector of Customs, Calcutta, replied on 6th May stating that he had forwarded to the Madras Collector a copy of the orders under which cess was collected at Calcutta at the old rate of ¼ pie per lb. until 30th April, and that he had no doubt that, as a result the excess collections would be refunded by the Madras Custom House.

NOTES AND NEWS.

The Inter-District Tennis Tournament.

On Saturday 28th May the High Range beat the Shevaroys at Coimbatore. The following were the scores:—

SINGLES.

Hawkins beat Ryle

6—5, 6—4

Pinches beat Dickins.

6—0, 6—0.

DOUBLES.

Hawkins and Pinches beat Ryle and Dickins.

6—2, 6—3.

We are informed that Mundakayam has received a walk over from Peermade, the latter district being unable to raise a team. The High Range, by virtue of a bye, are now in the finals, and their opponents will be the winners of the match, Nilgiris *versus* Mundakayam. This match it is hoped to play at Coimbatore on Monday, 20th June, on which day there is to be an Executive Committee Meeting at Head-quarters.

We append the results of the tournament to-date.

1st Round.	2nd Round.	Semi Finals.	Final.
(1) Shevaroys A Bye.	Shevaroys.	High Range.	High Range. A Bye.
(2) High Range *vs.* (3) Anamallais	High Range.		
(4) Nilgiris *vs.* (5) Wynaad.	Nilgiris.	Nilgiris.	...
(6) Nilgiri-Wynaad *vs.* (7) U. P. A. S. I.	U. P. A. S. I. W. O.		
(8) West Coast *vs.* (9) Peermade.	Peermade. W. O.	Mundakayam. W. O.	
(10) Mundakayam A Bye.	Mundakayam.		

Uganda Rubber.

According to the Colonial Report for Uganda for the year 1918-19, **Para rubber** is now well-established, and though several years must elapse before the trees on most estates will reach maturity, the output expands yearly, and the crop promises in time to become the principal commodity produced on European plantations. The acreage on European estates is estimated at 11,255 acres, mainly interplanted with coffee, and the exports during the year totalled 253,063 lbs., an advance of 108,336 lbs. on those for the preceding twelve months. The respective values of shipments during these two periods were computed to be £12,893 and £9,965. Several of the more important chiefs have now been attracted to Para Rubber, and it is hoped to extend cultivation considerably in the future. Ceara is widely planted in native villages, but it is not a remunerative investment, and tapping of these trees has almost been suspended.

The Ceylon Labour Commissioner.

Mr. H. Scoble Nicholson writes in the "Planting Gazette" under the heading "South Indian Estates."—

> "In the last issue of the "Planting Gazette" there appeared, under Arantangi and Puducottah Agencies, some Agents' reports with regard to alleged conditions on some South Indian estates. These reports were published inadvertently, having been overlooked by me, for which I accept responsibility, and have addressed my regrets to the U. P. A. S. I."

The Planters' Labour Act.

A Government order says:—Under section 4 of the Madras Planters' Labour Act 1903, the Governor-in-Council is pleased to authorise Mr. William Charles Raitt, of Bargiri Estate, Kutta, Coorg, to attest the execution of labour contracts.

South Indian Labour for Mauritius.

According to a Ceylon Contemporary, it appears that "while Sir Hesketh Bell, Governor of Mauritius, was in Ceylon he made inquiries with the object of obtaining assistance for Mauritius in the matter of recruiting labourers in South India, and the result was that very satisfactory arrangements were made. Sir Hesketh Bell suggests the employment, provisionally, as Superintendent of recruiting an officer who has been on the permanent staff of the Ceylon Labour Commission, and who is strongly recommended by Mr. Scoble Nicholson."

One wonders if the Madras Government were consulted in the matter.

Ferguson's Ceylon Directory.

We have to acknowledge a copy of Ferguson's Ceylon Directory for 1921. (Colombo, the *Ceylon Observer Ltd*). It is a formidable volume of over 1,000 pages, which seem to include all the information anyone might possibly need regarding the Island and its inhabitants. A feature, not always of first rank in publications of this nature, is the excellent index permitting a ready reference to the subject it is desired to read up. We, of course, are mainly interested in the Planting and Agricultural Review, an excellently, written section on Ceylon's leading industry. This very necessary Directory should find a place on the office shelf of all who are interested commercially, or otherwise, in Ceylon.

The Government Entomologist.

Mr. Ballard is a rare contributor to these pages, but we hope he will find time to follow up his article this week with further notice on Helopeltis and other insect pests of planters' crops.

If no Rubber was shipped for a year.

This drastic step, says *Tropical Life*, need not be taken at once. It would do quite as well if the start was made on January 1st next. Our friend mentions the want of confidence in all rubber producers, and humourously enough goes on to say that, even with prohibition in producing countries, illegal tapping and shipments would still go on through sheer "cussedness," as well as greed, and an incorrigible love in all men (and still more in most women) to do a thing merely because you must not, will always produce some rubber, but nothing to trouble about if the Government and the loyal 99 per cent. work together. When illicit rubber does appear, like whisky turned hair-wash in America, the authorities will know how to deal with it and—stop it.

LETTERS TO THE EDITOR.

(*The Planters' Chronicle is not responsible for the opinion of its Correspondents.*)

Assam Labour.

Dear Sir,—No doubt many of your readers have seen the leading article in the *Madras Mail* of 23rd dealing with the result of the non-co-operation movement on Assam Tea Estates. Not only has it resulted there in appalling distress among the coolies, but it must also have entailed further enormous loss to the estates already hampered by very serious economic difficulties.

We know that the non-co-operation party have a particular eye on planting districts, and in some are already at their work of sowing disaffection; and the suggestion I would accordingly make is that the full facts of what has occurred in Assam, showing both the causes and the results, should be made known as widely as possible both in planting districts and in recruiting areas. It should not be difficult, I think, for you to draw up a plain statement of the case worded in the simplest language. I have no doubt the Publicity Board would assist, if necessary? I am sure that planters would be only too glad to arrange for the distribution of pamphlets among their labour. The cost would be negligible, particularly if regarded as a form of insurance, and the results might be valuable.

Yours faithfully,
(Signed) "C"

[Note by Ed. P. C.—We have this matter under consideration.]

FOR SALE.

For fresh Vegetable and Flower Seeds, Economic and Ornamental Plants.

Apply—CURATOR,
Government Botanic Gardens,
OOTACAMUND.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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EDITORIAL NOTES.

The Tennis Tournament.

We understand that Mundakayam is unable to agree to the date suggested, *viz.*, 20th inst., for their match with the Nilgiris in the semi-finals. At the time of writing we do not know what alternative date is suggested. Under the rules, the match must be played on neutral courts on or before the 30th June.

Ceylon Tea.

According to the Ceylon Chamber of Commerce Weekly Price Current dated 16th and 23rd May, 307 lbs. Ceylon Tea were exported *via* Tallaimannar to Ayyampet, and 250 lbs. to Trichinopoly.

Quality First.

We recommend to the earnest consideration of Tea planters in this country that section of the Indian Tea Association proceedings, published in this issue, under the heading "Restriction of output." We have consistently backed up the "Quality First" school from the very beginning of this crisis, indeed when the crisis was not actually upon us, but only a menace.

Coffee Prices.

We draw attention to the market article on another page. The Coimbatore auctions are announced, and will take place at Stanes & Co's Works on 13th and 14th June, and at the Anapura Works on 15th and 16th June.

Statistics.

In emphasizing, as we have all along done, the need for accurate statistics in our industries, we have sinned in good company. At the Rubber Growers' Association Annual Meeting, the Chairman said:—

"As regards the statistics of acreages under rubber, we regret that much still remains to be done. It is a matter of the first importance that we should be in possession of reliable data in this connection. There are no doubt difficulties in obtaining this information, but we should continue to urge on Local Governments how vital it is to the industry that this matter should be promptly dealt with."

Coffee in Malaya.

Coffee is very frequently grown with little or no regard to the special soil requirements of the plant, resulting in differences of opinion as to the suitability of Malaya as a coffee-growing country. One cannot be too careful in the selection of land for this crop. Liberian coffee is best grown locally, and good and steady returns have been recorded from lands of a peaty nature in the low country A shallow soil, or sandy lands are quite unsuitable, as also are water logged sub-soils. Statistics of prices of Liberian coffee paid per pikul at Singapore during 1912 to 1916 are as follows:—

1912	July to December	...	$36·50
1913	January to June	...	39·00 to 42·00
1913	July to December	...	39·00
1914	January to June	...	39·00 to 39·50
1914	July to December	...	24·00 to 39·50
1915	January to June	...	28·00 to 40·00
1915	July to December	...	28·00 to 37·00
1916	January to June	...	32·00 to 45·00
1916	July to December	...	40·00 to 45·00

Robusta coffee has given very varied results, but on suitable lands satisfactory returns have been procured.—(Annual Report, P. A. of Malaya 1920-21.)

Gloomy Rubber Outlook.

A Home paper, early in May, published the following :—

When the 25 per cent. restriction of output in the rubber industry was agreed upon, optimists were to be found who anticipated the first fruits of the policy in the spring of 1921. Unfortunately, various adverse factors have conspired to upset these calculations, chief, of course, being the acute industrial trouble and the severe slump in trade. Far from showing signs of improvement, the position appears to be decidedly the reverse. Stocks of the material continue to be augmented week by week, and the total is now in the neighbourhood of 70,000 tons. With the demand inactive in all directions, the outlook is altogether unpromising. Various suggestions have been advanced with the object of easing the situation, but, so far, little has emerged to cheer holders. The prospects of the scheme for a 50 per cent. reduction of output are none too rosy in view of the opposition which has been aroused, while, more recently, the idea of a selling agency has once more been discussed. The latest batch of reports clearly indicates the difficult times through which the industry is passing, as will be seen from the comparison appended.

	1919.		1920.	
	Profit.	Div.	Profit.	Div.
	£	p. c.	£	p. c.
Cromlix Rubber	12,624	25	8,078	10
Gen. Ceylon Rubber	52,302	30	68,657 (loss)	Nil
Golden Hope	15,080	25*	7,872	Nil
Gula Kalampong	125,724	22½	56,111	7½
Harpenden	22,702	72	15,844	7½
Highlands and Lowlands	99,056	30	37,712	Nil
Klanang Produce	41,646	50	11,114	Nil
Langen (Java)	28,297	15	13,884	7½
Malaysia	22,051	25	12,054	10
Pegoh	28,619	35	38,040	10
Siak (Sumatra)	7,428	15	8,521 (loss)	Nil
Stagbrook Rubber	11,458	15*	25,511	Nil
Sungei-Kapar	32,157	40	7,595	Nil

* And share bonus.

WYNAAD PLANTERS' ASSOCIATION.

Proceedings of the Annual General Meeting, held at the Meppadi Club, on 1st June, 1921, at 2 P. M.

Present.—Messrs. C. E. Abbott, H. C. Leslie, T. P. Gauld, W. G. Craig, B. M. Behr, A. D. MacBain, P. A. Naylor, S. H. Powell, and J. A. Gwynne, Honorary Secretary.

Visitors.—Dr. J. P. Stallard and C. R. Charsley.

Proceedings of last meeting were taken as read.

The Honorary Secretary read his report as follows :—

ANNUAL REPORT, 1920-21.

The period covered by this Report is from 1st January, 1920, to 31st March, 1921. The alteration in the close of the financial year brings the date into line with the financial year of the U. P. A. S. I., and in accordance with the Articles of Association. During the period under review there have been eight ordinary General Meetings which have been well attended. The acreage now subscribing to the Association is Tea 8,958 acres, Rubber 116 acres, and Coffee and Pepper 997 acres, 10,071 acres in all, and there are two personal members.

SEASON AND CROPS.—The Planting industry has come through an anxious time in the past fifteen months with decreased yields, falling prices for our produce, and increased costs of production. Losses were inevitable, and Estates and Companies have had to find additional capital to carry on. The Government of India refused to remove the iniquitous export duty on tea although the strongest representations were made to Government by the Indian Tea Association. In the last proceedings of this Association it is worthy of note that the Assam Legislative Council passed a resolution on the 22nd March to the effect that the Government of Assam recommended strongly to the Governor-General in Council that the export duty on Tea be forthwith removed. As you all know the matter of restricting output fell through owing to the lack of unanimity in Ceylon and Northern India.

LABOUR.—The supply has been none too plentiful, and our trials during the hot weather are always with us. We all realise what great benefits would accrue to estates if more coolies could be induced to stay on during April and May, and if those settled in April returned early in June. It would seem that all the Enams, free cumblies, rail fares, &c., are of little avail as inducements, and it might be worth considering whether such gifts should be continued especially during these hard times when every cent of expenditure has to be carefully scrutinised. The question of the rates of pay is down for discussion at this meeting.

LABOUR LAWS.—These have been approved of by all the Associations, and a Committee to deal with matters arising under these rules was appointed at the meeting held on 4th October, 1920.

INCORPORATION.—This matter is now in the hands of the Registrar, Law (Legislative) Department, and before it can be put through Article No. [illegible] will require to be amended which can be done now.

LOCAL ADMINISTRATION.—Our Member on the Madras Legislative Council has written to say that the matter is in the hands of Government. In this connection I have a further proposition to put before you to-day.

GRAIN.—It is a matter for regret that the Mysore Government continues the restriction on the export of rice though the privilege of exporting ragi and horsegram is still accorded to merchants in the District under permit.

TEA CESS.—On the recommendations of the Indian Tea Cess Committee the Government of India, by Act No. I of 1921, raised the cess from ¼ pie per lb. to 8 annas per 100 lbs. The Committee however do not intend to levy the maximum of 8 annas at once, but have notified the Indian Tea Association that the cess would be increased to 4 annas per 100 lbs. from 1st May.

ROADS.—After much correspondence and delay information has been received from the President of the District Board that the work of re-erecting the bridge at the 32nd mile on the Manantoddy-Tellicherry Road has been put in hand.

In conclusion I thank you all for your support and assistance during my tenure of office, and I now ask you to pass the accounts, if found in order, and to accept my resignation.

The accounts were passed, and the cess for the current year was fixed at 3 annas per acre.

INCORPORATION.—Mr. C. E. Abbott was elected Chairman of the Association, and the Honorary Secretary was directed to inform the Secretary of the U. P. A. S. I. accordingly so that article 9 may be thereby amended.

LOCAL ADMINISTRATION.—The Honorary Secretary read a letter from Mr. J. A. Richardson, M. L. C. in regard to the progress made in respect of representations to Government in connection with our having a separate District Board for the Wynaad. The Honorary Secretary brought a proposal before the meeting that he writes to the Planting Member proposing a United District Board for the different Wynaad Districts. This was seconded by Mr. Craig, and after some discussion was carried.

GANJAM LABOUR:—Mr. Behr addressed the meeting with regard to the control of the administration of this venture, and the following resolution was put to the meeting, and unanimously carried:—

"This Association is of opinion that, as the Ganjam Labour recruiting scheme is being carried on in the interests of, and entirely at the expense of, a few private members of the U. P. A. S. I., it should be controlled by a Committee formed of those members, and not by the Executive Committee of the U. P. A. S. I."

Mr. Gwynne was re-elected Honorary Secretary for the ensuing year.

Messrs. C. E. Abbott and J. A. Gwynne were elected members of the General Committee and as delegates to the U. P. A. S. I. meeting at Bangalore in August next.

With a vote of thanks to the Chair, the meeting terminated.

(Signed) C. E. ABBOTT,
Chairman.

(,,) J. A. GWYNNE,
Honorary Secretary.

U. P. A. S. I. ANNUAL MEETING, 1921.

The Annual Meeting will be held at Bangalore, Commencing on Monday the 22nd August, 1921.

PRELIMINARY DRAFT AGENDA.

ORDINARY BUSINESS.

1. The Chairman's Address.
2. Report of the Executive Committee.
3. Accounts—1st April, 1920 to 31st March, 1921.
4. Election of Chairman and Auditors.

THE U. P. A. S. I.

SPECIAL BUSINESS.

5. Articles of Association, amendment of Article 6.
6. Incorporation of District Associations.
7. Inter-District Sports.
8. "Planters' Chronicle."
9. South Indian Planters' Benevolent Fund.
10. Upasi Buying Agency.
11. U. P. A. S. I. Rules.
12. AFFILIATED ASSOCIATIONS, ETC.

LEGISLATION.

13. The Planting Member.
14. Factory Act.
15. Labour Laws.
16. Malabar Tenant's Improvement Act.
17. DUTIES AND TAXES.

COMMUNICATIONS.

18. Harbours.
19. Railways.
20. Roads.
21. Shipping.

LABOUR DEPARTMENT.

22. Director's Report.
23. International Labour Conference.
24. Labour Rules.

GENERAL.

25. Rice Issue to coolies on Estates.
26. Statistics.
27. Auxiliary Force, India.
28. Medical.

TEA.

29. Restriction of Output.
30. Markets.

RUBBER.

31. Restriction of Output.

COFFEE.

32. Weekly cable of Prices.

SCIENTIFIC.

33. Report of the Deputy Director of Agriculture, Planting Districts.
34. General Mycologist.
35. Rubber Mycologist.
36. BUDGET AND FINANCE.
37. ELECTION OF EXECUTIVE COMMITTEE.

NOTE.—The above Agenda is nothing but a skeleton, to be filled out by Members, and if any item fails to find someone wishing to bring forward a resolution under it, unless it refers to unfinished business still before the Association, it is liable to be withdrawn from the final Agenda. All resolutions and new subjects must reach the Secretary *before the 13th July*, 1921.

THE SCIENTIFIC DEPARTMENT, U. P. A. S. I.

The Yield from Individual Rubber Trees.

I have received the following very interesting letter from a rubber planter :—

" I see in this week's Chronicle that you have given very interesting figures regarding the yield from individual trees in an experimental plot of coffee, and this has prompted me to give you the following figures, which you may publish if you care to do so."

" It is as well to mention that the investigation was made by me because of the abnormally high percentage of scrap in my total crop, and also because the yield of the estate was poor, and I conceived that a careful investigation and census would enable me to discover what was wrong."

" The field so carefully investigated has for many years given high yields per acre. It consists of 61·15 acres, and was planted 20' x 20', in 1906. It has a south-eastern aspect, and is nowhere steep nor flat. It has received a fair amount of manure and cultivation, and is well grown. Thinning out was commenced in 1911, and has proceeded steadily ever since, until, at the time of the census, December 1920, it contains only 80 trees per acre."

The figures are as follows : —

(1)	Trees yielding latex into the cups ...	1428 ...	28%	of total
(2)	Trees yielding scrap only ...	2605 ...	50%	do
(3)	Trees not yielding anything ...	1078 ...	20%	do
(4)	Trees not tapped (treated for brown bast on all three segments) ...	104 ...	2%	do

I have long been of the opinion that on many rubber estates 75% of the crop is obtained from 25% of the trees, and these figures bear me out. It would be of great interest to know the results of a census of the same field, and trees taken again, now with the object of finding out whether the same individual trees are bad yielders all the time, or only part of the time.

It is of interest to compare the figures obtained from a similar sort of census made at the Rubber Experiment Station, Mooply, during the months of November and December last year, over 1,266 trees. These figures are as follows: —

(1).	Trees yielding scrap only ...	19·4% of the total.
(2).	Trees yielding up to ½ oz. of latex ...	29·6% do
(3).	Trees yielding from ½ to 1 oz. of latex...	26·8% do
(4).	Trees yielding from 1 to 2 oz. of latex...	17·9% do
(5).	Trees yielding from 2 to 3 oz. of latex...	4·1% do
(6).	Trees yielding over 3 oz. of latex ...	2·2% do

A census such as this provides valuable information when thinning out is to be done. In the field dealt with by my correspondent, the 2% of trees with brown bast and the 20% not yielding anything might be thinned out straight away without making any reduction in the crop, provided that none of them ever recover enough to be worth the money spent on them. They will make room for the better development of the remaining 78% which return some yield. When further thinning out becomes necessary, some of the 50% which yield scrap only can be removed.

In this case, however, the trees have already been thinned down to 80 to the acre, and the census emphasises the urgent need which exists for work to be done on seed selection and plant breeding, so as to endeavour to raise a strain of trees which will be, among other things, better yielders. With the advent of the Rubber Mycologist, and the establishment of a really fine Mycological Station with some land attached to it, where such work can be carried out under the immediate and constant supervision of the officer in charge, it is hoped to make a start with some work of this sort. Preparations are also being made at the Rubber Experiment Station, Mooply, to do some seed selection work this year.

RUDOLPH. D. ANSTEAD,
3—VI—21. Deputy Director of Agriculture, Planting Districts.

THE SOUTH INDIAN PLANTERS' BENEVOLENT FUND.

The new scheme of collection by V. P. P. came into force on April 1st last, and it is interesting to watch the effect on subscriptions. We propose summarising the position month by month from now onwards. Since April 1st, we are glad to announce three life members, Messrs. S. Bayly, W. Morres, and H. Cuthell. The following is a summary of the collections for April 1st to date:—

Planters' Association.	No. of Subscribers.	Amount.		
		RS.	A.	P.
Anamallai	18	247	8	0
Bababuddin	...		...	
Central Travancore	5	65	0	0
Coorg	1	10	0	0
Kanan Devan	7	90	0	0
Mundakayam	1	20	0	0
Nilgiris	4	240	0	0
Nilgiri Wynaad	1	15	0	0
North Mysore.	...		...	
Shevaroys	...		...	
South Mysore	8	100	0	0
South Travancore	5	50	0	0
West Coast	4	60	0	0
Wynaad	5	430	0	0
Total	59	1,327	8	0

The results are to some extent encouraging, but still leave much to be desired.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore,

8th June, 1921.

SECRETARY'S REPORT NO. 21.

1. INDIAN TEA CESS.—With reference to item 1 of last week's Report, the Collector of Customs, Madras, has intimated that instructions have been issued to the Customs Officers at outports that the rate of cess leviable on Tea exported between 2—3—21 and 30—4—21 is only a quarter of a pie per lb., and that any amounts collected in excess should be refunded.

2. COCHIN HARBOUR COMMITTEE.—The Government of Madras have requested the Collector of Malabar to reassemble the *ad hoc* Committee, and ask them to prepare a schedule of rates calculated to give a return of about Rs. 2/- per ton, and to say whether they are prepared for the early introduction of the Cochin Port Trust Bill, and whether they would advise the constitution of Cochin into a separate Port, and the crediting of all dues levied in respect of ships calling at Cochin to a single fund, to be entitled the Cochin Port Fund, and the withdrawal, as far as Cochin is concerned, of the arrangement under which payment of dues at any one Port on the West Coast frees the vessel for a period from payment of all dues at any other Port on the same coast. Doubts have been expressed in responsible quarters as to the possibility of keeping the bar open by dredging alone. The Government have, therefore, arranged for experimental dredging operations to be conducted with the aid of the dredger "Munnar." This experiment is in progress, and will be completed in 1922, so that if it proves successful it will be possible to proceed with the dredging of the larger channel in 1923.

As it was not expected that the Committee would be reassembled, the President, last year, asked us not to press the proposed substitution of Mr. J. A. Richardson, M. L. C. *vice* Mr. H. Waddington, resigned, as our representative on the Committee, and consequently we have no member on it at the moment. The President has been asked to reconsider the nomination of Mr. J. A. Richardson, M. L. C.

3. UPASI BUYING AGENCY.—Last week circulars regarding this were sent to all members of the U. P. A. S. I. and to all Planters in South India. Replies have already been received from 20 planters who wish to join the Agency, and I hope next week to be able to report the minimum number of members necessary to start business has been obtained.

(Signed) C. H. BROCK,

Ag. Secretary.

DISEASES OF HEVEA BRASILIENSIS.

The following note is taken from the Annual Report for 1920-21 of the Planters' Association of Malaya :—

During the past year no new diseases of *Hevea* have been recorded in Malaya, but some of those previously recorded, more particularly root diseases in some districts, threaten to assume serious proportions. It behoves all those interested in the rubber industry to see that much greater attention is paid to the young plantations than was given to many of the older ones. The chief source of the most dangerous diseases, that is root diseases, is unquestionably buried, and decaying timber, which even yet is left far too long in young clearings. Although the list of known species of fungi which live as parasites of *Hevea* is already a formidable one, there is little doubt that other species of fungi will in the future attack *Hevea*. Further, some of those which are at present weak parasites may and probably will increase in virulence, e.g., *Diplodia*. At the present time it would be a wise policy, where the financial position permits of the expenditure, to utilise any surplus labour free from tapping, etc., to deal with pests and diseases in a thorough manner.

There is a general tendency for losses due to diseases to increase year by year, and the past year is no exception. Much of this loss could have been avoided by a more liberal allowance in dealing with diseases in the past. The fact is seldom realised that careful attention to pests and diseases is a form of insurance which goes far towards ensuring the permanency of estates as successful revenue producing propositions. It seems strange that directors who will cheerfully pay one to three *per cent* for insurance of buildings, still refuse even one-tenth *per cent* on pests and diseases, to ensure as far as possible the permanency of the estate.

Although the area planted with *Hevea* in Malaya now exceeds 1,000,000 acres, no serious insect pests have yet attacked the tree.

The following short synopsis may not be out of place :—

ROOT DISEASES.

Ustulina Zonata.—Although there is nothing to add to last year's Report under this heading as far as investigations are concerned, yet the fact that this disease is a serious menace, especially in some of the older areas, needs emphasising. Clean clearing at the start, followed by a more efficient estate sanitation in general, will do much to minimise the attacks of Ustulina Zonata. Many of the older areas are now so severely attacked by this fungus that no remedial measures can be carried out, and re-planting in the near future will have to be considered. These remarks apply to root diseases in general.

Fomes pseudo-ferreus.—This fungus, owing to the insidious nature of its incidence, is equally as dangerous as the preceding one. The fungus spreads chiefly by contact, first from jungle stumps and later from one affected *Hevea* tree to another. When *Hevea* trees show evidence of attack by this fungus they are beyond effective treatment, and therefore prevention rather than cure should be aimed at. Clean clearing is the most effective method of prevention.

Fomes lignosus.—This is perhaps best known as a serious disease in young clearings, but it has assumed very serious proportions on estates of nine years old and upwards in a few districts. It is most difficult to eradicate completely from peaty lands where the water level is high, and from low lying flat lands where the soil is a loam overlying a wet stiff clay subsoil. The elimination of the fungus from young clearings can only be achieved by removal of all buried timber to a depth of at least two feet.

Sphaerostible repens.—Usually this fungus only appears on old trees growing in more or less water-logged areas, where the soil is sour. Efficient drainage, increasing the aeration of the soil, is the most effective measure of control In no case has this disease assumed really serious proportions.

FOMES LAMOŒNSIS.—(*Hymenochœte noxia*) This species of Fomes is not nearly so prevalent as the two species previously mentioned. Young trees are rarely attacked. The fungus is distinguished by a brown or black mycelium on the roots, to which are attached small stones, etc. The spread is by contact, generally probably facilitated by root wounding. This also applies to other root diseases, especially *Ustulina zonata.*

STEM AND BRANCH DISEASES (*Ustulina zonata*)—Although this is dealt with under root diseases it must also be considered here. Entry to the aerial portions of the tree is frequently affected through a carelessly pruned branch, or a wind break. Trees attacked high up the stem in this way quickly succumb by breaking off at the affected point during heavy rain or high winds. Twenty cents spent on pruning and tarring is a cheap, effective measure.

DIPLODIA (*Die-back.*) - This is a selective wound parasite, and fortunately lacks virulence. Usually, affected trees, especially in older areas, occur in more or less well marked groups ; dying back from the tips of the topmost branches rapidly extending downwards is a well marked feature. Even the biggest *Hevea* trees are quickly killed by this fungus once it becomes firmly established.

CORTICIUM SALMONICOLOR (*Pink Disease.*)—In general this disease only becomes serious in those parts of the Peninsula where the rainfall is heavy, although sporadic attacks occur from time to time throughout the rubber-growing areas. Prompt attention is necessary if rapid spread is to be avoided. Extreme vigilance is necessary to control this disease as the spores are air-borne. If prompt attention is given to new cases, pollarding of trees will be unnecessary.

SPHÆRONEMA FIMBRIATUM. (*Mouldy Rot of the Tapped Surface.*)—This is perhaps the worst disease of *Hevea* cortex which has yet appeared in Malaya. Recently cases have been recorded for the first time in the State of Johore. There is little doubt that the migration of tapping coolies is the chief means of spreading this disease from one district to another.

The fungus is so virulent in its attack, and spreads so quickly from tree to tree, that the disease, unless checked by prompt measures at the start, quickly assumes the character of an epidemic, and complete cessation of tapping areas may then be necessary for a considerable time. The control of this disease is much more difficult in closely planted than in widely planted areas. Recent investigations have shown that weather conditions cannot be relied upon to check the spread of this disease. There is always the probability that the disease will spread to areas in States where yet it is not recorded. A sharp lookout should therefore be kept on estates which are at present free from this disease.

BLACK STRIPE CANKER. (*Phytophthora sp.*)—As with pink disease, climatic conditions, especially as applied to rainfall, are the most important factors in the virulence and rapid spread of this disease. During the past year this disease has appeared on several estates which were previously free from it.

PATCH CANKER (*Phytophthora sp.*)—Although not so nearly so wide spread as the preceding, there is evidence to show that this disease is extending to areas previously unaffected.

BROWN BAST.—Although this "disease" was not commented on at length in last year's Report, there is no doubt that the number of trees affected with this disease is gradually being added to. The industry awaits a definite pronouncement of the cause and cure of this disease.

INDIAN TEA ASSOCIATION.

ABSTRACT OF PROCEEDINGS OF A MEETING OF THE GENERAL COMMITTEE, HELD AT CALCUTTA, ON 25TH MAY, 1921.

CORRESPONDENCE WITH THE INDIAN TEA ASSOCIATION (LONDON).—Letters, dated 21st and 28th April and 5th May from the Indian Tea Association (London) were before the Committee for disposal. The principal subjects dealt with in these letters were :—

(*a*) THE HOME INCOME TAX ACT, 1918: SECTION 43—In the proceedings of 12th April it was mentioned that a test case was being arranged by the Indian Tea Association (London), the Rubber Growers' Association, the Ceylon Association in London, and the South Indian Association in London, for the purpose of settling whether section 43 of the Act of 1918 is still in force. The section gives relief in respect of diminution of profits or gains due directly or indirectly to the war, so long as the section is continued in force by any subsequent enactment, and there was some doubt as to whether, in point of fact, the section had been thus continued.

In the letter of 28th April, it was stated that the special case had been heard, and that judgment had been reserved. On that day, however, the question had been under discussion in the House of Commons, when the following resolution had been adopted, namely :—

RESOLVED that :—

(*a*) Sections 43 and 44 of the Income Tax Act, 1918, shall be deemed not to have continued in force as respects the year 1920-21.

The London Association commented that, if this resolution were confirmed when the discussion on the Finance Bill took place, it would seem to close the matter to the disadvantage of the industry.

The General Committee noted the position, and directed that the papers should be recorded.

(*b*). THE INDIAN HOMEWARD BILL OF LADING.—In the proceedings of the same meeting—12th April—reference was made to a meeting, in London, of representatives of Associations concerned in the Indian Trade, when it was decided to ask the Imperial Shipping Committee to arrange a conference between shipowners, bankers and traders, to agree on a form of bill of lading for the Indian homeward trade; to advocate the introduction of legislation on the lines of the "Harter" Act; and to press for the abolition of freight rebates. It was now stated, in the letter of 28th April, that a deputation from the various Associations represented at the meeting referred to would shortly wait on the Imperial Shipping Committee, and that Mr. J. D. Nimmo would then represent the Association.

(*c*) RESTRICTION OF OUTPUT.—With the letter of 5th May there was forwarded, for information, copy of a letter addressed by the President of the Ceylon Association in London to various Associations in Ceylon, representing forcibly the advantages which had followed on the restricted production and better manufacture of tea in Ceylon. The London Association suggested that this might be brought to the notice of members, and they commented on the striking fact that Ceylon tea which, in the years prior to the war, consistently averaged about ¼*d* to ½*d* per lb. over the average for Indian tea, should now be realising as much as 6½*d* more than the Indian average. The letter from the President of the Ceylon Association was as follows:—

The course of the market for Ceylon teas, during the last few months, has fully justified the attitude adopted by my Association with regard to quality as opposed to quantity, in their recommendations which were sent out on October 14th, 1920, and January 4th, 1921. Whereas in December last the price of Ceylon tea and of Indian tea at the weekly London sales was practically the same, the excess in price of Ceylon over India has steadily increased month by month, until last week we saw a difference between the two averages of no less than 6½d. per lb. This is due to the fact that the change of method has more rapidly operated in the case of Ceylon than was possible with India, which is still selling its 1920 crops, made when market conditions were very different to what they are at present. The Ceylon teas which have arrived in this country for some time past have a distinctive character, and they command a market which is independent of the quantity or quality of teas from other countries. As long as this distinctive character is kept by careful plucking and manufacture, so long is there every prospect of the price keeping at a level which under present conditions is remunerative. My Association, therefore, hopes that in spite of possible temptation to produce a larger quantity at the expense of quality, such a procedure will not be embarked on by any section of producers in Ceylon. Such a course would be suicidal to the individual and harmful to the industry as a whole. If exports are limited to about 160,000,000 as has been expected, of which rather over 100,000,000 may be expected to come to this country, the weekly offerings will continue, as they are at present, in the neighbourhood of 20,000 packages per week. Such a quantity, if of desirable quality, as it should be, will find its own market, and will be absorbed at satisfactory prices.

I have addressed similar letters to the Chairman of the Ceylon Chamber of Commerce and the Planters' Association of Ceylon, and no doubt, in consultation with them, you will consider the advisability of circularising the various members of the Associations in Ceylon, or giving publicity to it in the press, should it be desired.

I would mention that the press on this side have not been communicated with, but a draft has been seen by the Chairman of the Indian Tea Association, who expresses full approval.

The Committee noted the terms of this letter with much interest. They realised that the fact that the Indian teas now offering at home were from last season's crop, while the Ceylon teas were of more recent growth and manufacture, no doubt had something to do with the large difference between the comparative prices obtainable. They believed that Indian concerns generally in the new season were making a point of finer plucking, and were paying particular attention to manufacture.

LABOUR DIFFICULTIES.—The position in connection with labour difficulties has been very closely watched by the Committee during the past few weeks, and they have had a number of special meetings to discuss the developments that have taken place from time to time. In addition, the Chairman visited Sylhet and, later, Asansol (the visit to the latter place being in connection with the outbreak of cholera there among returning coolies) while at the request of the Committee Mr. R. Langford James, M. L. C., visited Shillong with Mr. H. B. Fox, M. L. C., Chairman of the Surma Valley Branch, to discuss matters with His Excellency the Governor of Assam. The Committee have throughout been in close touch with the various branch and district Associations; they considered it desirable to convene an urgent meeting of Calcutta members of the Association on 20th May, when the position was reviewed in detail, and when the Chairman explained the result of his visit to Sylhet, and Mr. Langford James reported with regard to his interview with the Governor of Assam.

THE INDIAN INCOME TAX ACT, 1918: Liability for deduction of income tax from employees' salaries, and for the submission of the annual return under Section 16.—This matter was referred to at some length in the proceedings of last meeting, when it was arranged, in the circumstances then detailed, to issue, to agency houses with interests in the Dooars, copies of a letter, suggested by the Association's solicitors, which might be addressed to the Deputy Commissioner, Jalpaiguri. At the time the information of the Committee was that the local enquiry proposed in connection with the suggested revision of the Act had been postponed, but it had since transpired that this enquiry was being proceeded with, and it was accordingly arranged that the Vice-Chairman should, on behalf of the Association, attend a meeting of the Sub-Committee appointed by the Bengal Chamber of Commerce to discuss the points to be brought forward. He had since reported that he had done so, and that he had explained the points arising out of the recent correspondence with the Deputy Commissioner; it had not been thought, however, by the Sub-Committee, that these were such as to call for any amendment of the Act. On now further discussing the whole question, the Committee decided to suggest to the Chairman of the Dooars Planters' Association that he should arrange an interview with the Deputy Commissioner, to discuss the whole question of procedure.

CONDITION OF TEA PACKAGES.—In the proceedings of the 15th March it was stated that the Secretary, Calcutta Liners' Conference, forwarded extract of a letter from the London Secretaries to the Conference, in which they drew attention to the fact that considerable claims had to be met in London for damages in consequence of the very inferior packages and cases in which tea was being shipped. As then decided, the Association had requested the Conference to provide particulars and details of consignments which were noticeably inferior in character and stoutness of packing.

A letter in reply, dated 19th May, had now been received from the Secretary, Calcutta Liners' Conference, with which was forwarded a letter from one of the Lines giving information of the kind asked for, and urging that all old wooden chests should be either cross-hooped or gunnied. The Secretary was directed to thank the Conference for the trouble taken in the matter, and to state that meantime the Committee considered that a certain amount of the evil was due to the fact that, in many cases, chests that were being shipped were balances of stocks obtained during the war, when it was a matter of difficulty to maintain the usual standard of chest. When these stocks had been worked off, it was hoped that there would be less occasion to complain of chests being shipped in a frail condition. Further particulars expected from the London Secretaries to the Conference were to be awaited.

MARKET REPORTS.

Messrs. T. H. Allan & Co., in their report, dated 4th May, give the following figures of offerings of coffee in auction :—

	27th April offered.	3rd May sold.	Offered since 1st Jan.
East Indias ...	5,114	3,696	19,175
Nairobi ...	3,711	1,061	16,636
Uganda ...	1,767	407	9,145
Costa Rica ..	2,949	3,224	61,522
Other Milds ...	1,732	104	33,714
Brazil ...	3,022	...	10,768
Robusta ...	...	...	1,098
Tanganyika ...	1,243	697	2,397

Last week, the report says, although very full rates were paid for a few choice parcels, the demand generally was slower, and in some cases prices were slightly in buyers' favour. Yesterday anything really good was well competed for at firm prices; the lower grades were slow, but the sales made showed no change in values.

By the following mail, Messrs. Leslie & Anderson report a further slacking off in demand. The tone of the market at auctions they say was distinctly poor, and values lower except for the finest grades of Costa Rica and East India Coffees taken by the Home Trade.

Locally we are told a sudden demand has arisen and business has been done at up to 52/8 ex bags for good coloured coffee. The demand is largely speculative, and is not expected to continue. The Coimbatore auctions have been fixed for 13th to 16th June.

The following is a selection of prices in auction early in May:—

Mark.	Ex.	No. 1.	No. 2.	No. 3.	PB.	T.
Elephant Talliar	8·96/6	17·89/6	23 78	16·67	4·89/6	5·58/6
Mangalore		16·91/6	9·81	2·58/6	4·85/6	3·56/6
Valparai	28 N	34· N	39·83/6	23·76	11· N.	7·63
Adderley	18·128	64·105	51 90	8·70	10· N.	11·67
MYSORE.						
Sanderson K		134·100	50·85	11·71	23 92	36·66/6
Cullaly H		20·120	53·104	39·85	11·125	13·76/6
Dataypore Mockett Utolallu		55·137/6	106·119	52·94	27·150	20·82/6
Artherwully		39·110	3·87	9·75	4·103	3·68/6
L. Chininhalli		40·106/6	32·91/6	8·76	8·98/6	6·65
Horikhan		29·109/6	37·89	25·78/6	6·100/6	6·65
MB. Honeyvale		47 109	20·90/6 21·90	22·75	9·98	8·63
HC K		33·112	26·89	9·86	5·108/6	4·60
H DD		74·100	72·85	21·78	20 91	14·75
Cannon M		26·144	27·128/6	10·98	5·157	4·76
„ B		28·124	65·121/6	48·97	11·152	12·76/6
Mockett S & L		20·116/6 28·116	26·95	6·75	14· N.	10·67/6
PH & Co. J		20·132	28·112/6	4·75/6	6·141	4·76/6
Santawerry		18·133				
COORG.						
T Huvinakadu		24·100/6	34·91/6	6·71/6	5·94	4·62
NAIROBI.						
Best Selected		121	100/6	85	121	55

Tea.

The market for medium and fine grades continued steady, and there was a moderate to good demand. Common grades were very difficult to move, and further declines had to be accepted to effect sales.

Rubber.

In the midst of the gloom it is satisfactory to note in mail week the increase in deliveries. Imports were 1,746 tons, deliveries 1,312 tons. Stock 69,158 tons. From this it will be seen that stocks increased in spite of the increased deliveries. We have come down to this, that although stocks increase, the fact that they do not expand by quite so much as usual is hailed with satisfaction.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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THE COMPETITION FOR LABOUR.

It is generally admitted on all sides this year that labour is moving much more freely than usual, and although, of course, there will always be a few estates whose Kanganies are late in going up, others who are actually short and some with a moderate quota, most of the planters we have come in contact with report that labour has come in very well indeed, and they are to a large extent satisfied with the numbers they have. We tried some two weeks back to point out the folly of taking it for granted that a good year means permanent plenty, and drew attention to the warnings in the press of other Tamil labour using countries of the competition ahead. We trust, too, that planters did not miss the note we published recently, from which it would appear that Mauritius is to be added to the number of those who look upon South India as the happy hunting ground wherein they may delve for that much sought after commodity, labour. It is not generally, and certainly not sufficiently, realised that when we talk of competition by the Straits and Ceylon we include the lesser fry such as Burmah, the Kolar Gold Fields, and certain British Colonies which also have organisations in South India, or at least recruit in the same fields as the South Indian planter, and when we see the advent of further competitors such as Mauritius, one wonders naturally enough where it is all going to end.

We are accustomed to say in a general way that competition is an excellent thing. It stimulates production, tends to reduce costs at both ends, and is generally looked upon as a healthy sign. No one thinks for a moment of saying a word against a healthy rivalry in practically every walk of life, but the time arrives when a healthy rivalry may become a fight for life, a throat cutting affair, and unfortunately it is only then that the competitors realise how unfit they are for the contest, how egregiously they have committed the folly of not preparing for the struggle beforehand. In the matter of labour this has been particularly noticeable right down through the years of the last century, and it has led to legislation of a kind which engenders ill feeling between employers and employed as well as between employers themselves, (even among the employed) particularly when the question of emigration enters into the matter. When it is a question of making laws for the protection of either employed or employers in the confines of one's own boundaries, no doubt every community gets the legislation it needs or deserves in the long run, but legislation to control the subjects of another country is a different matter. Immigrants do not always come into a country because they like it, they come largely by force of circumstances, and in the case of the Tamil labourer by persuasion, so that in cases of this nature it is inherent in the country of origin to lay down such terms as it thinks fit, under which it will allow its surplus population to emigrate. The new Indian Emigration Act recognises this principle in forbidding the emigration of artisans, and in insisting on the country of adoption providing the means of studying the welfare of immigrants by the appointment of a special officer usually known as a " Protector of Immigrants," or some such significant title. This is all to the good, since, in spite of what we have said, we have experienced in the quite recent past examples of law-making in neighbouring countries which it would seem ought to have received closer attention from the Indian authorities than they did at the time. Ths signs are not wanting that all this is changing, and in the near future, certainly with the revival of those industries like Tea and Rubber which give employment to such a large number of Tamil coolies, we shall see in operation a more settled policy, a firmer control, and an insistence on better conditions all round by the Governments of this country in general, and of the Madras Presidency in particular.

We have always agreed in these columns with the policy of " liberty of the subject" which is the cry of modern democracy in this matter of emigration. We have agreed, too, that the Ceylon Labour Commission and the Straits organisations, among others, do not directly recruit labour in S. India. Their statements to this effect are of course by way of being a quibble, but the fact remains that these organisations are there only to assist and finance the Kanganies, who are sent over with a license to recruit. It is the question of control of these recruiters that requires study, since it is by no means a difficult matter for anyone to obtain a license, and possibly the most undesirable characters hold them. If this is not so, the system permits of undesirable characters handing over innocent people to the licensed recruiter, and above all it permits absconding Kanganies from South Indian Estates to join a Ceylon or Straits Maistry, and thus lose himself in either of these two countries. Even with a reciprocating arrangement, it is extremely difficult to trace cases of this nature, and there is no doubt considerable loss yearly to South Indian Estates from such absconding Kanganies.

Labour in the F. M. S. is controlled, or rather the recruiting of Tamil labour for the F. M. S. is controlled, by what is known as the Indian Immigration Committee. This Committee makes rules for the guidance of planters and others in their dealings with the Controller of Labour. In another part of this issue we reprint from the F. M. S. Government Gazette of May 20th, the rules made by this Committee under a section of "The Labour Code 1912" superseding the rules published in 1912, under which the Committee have until now worked. It will be seen that ordinarily the whole question turns on Kangany licenses which, presumably, are issued only to persons authorised by the Deputy Controller of Labour at Penang to recruit. This is most excellent, and judging by the other rules, this person is sufficiently controlled to prevent any unauthorised recruiting. Once the Kangany arrives in India however, control ceases to all intents and purposes, and he is not only a free man, he is a free man armed, armed too with a formidable weapon "the license"—a document quite capable on the one hand of persuading the innocent cooly that its possessor is some one only once removed from God, and on the other of opening up for the South Indian Estate Maistry or cooly who wishes to evade his debt a path to what he considers to be freedom. The fact that, in spite of control by license such things can and do frequently happen makes all the more pernicious the rule 1 (*b*) which we will repeat here. After saying that free or assisted tickets for *bona fide* labourers and their families may be issued on behalf of the Committee at Madras and Negapatam by the Depot Superintendent or Agent to holders of Kangany licenses, the rule adds that such tickets may be issued :—

> "To all labourers and their families *who have not been recruited by any Kangany*, but present themselves at the Government Depots at Negapatam and Madras and promise to work in the Straits Settlements, Federated Malay States, Johore, Kedah, Perlis or Kelantan."

The italics are ours. It is only a question of time for this rule to become known throughout the length and breadth of South India, and when that happens, the control of our Maistries will become even more difficult than it now is. We have spoken of dishonest Maistries ; such a rule as this is an invitation to dishonesty, it removes the lock on the door which hitherto kept honest men from succumbing to temptation. The Labour Department has for long fought against the wiles of the professional recruiter, and with this rule another formidable competitor is added to the lists.

The odds are becoming more and more against us!

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore, 15th June, 1921.

SECRETARY'S REPORT NO. 22.

1. RAILWAY CHARGES ON GOODS.—Under instructions of the Executive Committee, the following resolution of the Nilgiri Planters' Association has been submitted to the Railway Board with a request that some concession may be granted in respect of the surcharge on Plantation Goods :—

> "That this Association requests the U. P. A. S. I. to approach the Railway Board with a view to obtaining the same concession for "Plantation Goods" carried over the Indian Railways as is the case for food stuffs, firewood and fodder, which are not subject to the surcharge of 0/2/6 in the rupee. 'Plantation Goods' to include all packing materials, manures, tools and machinery usually used in agriculture, also all consignments of tea."

On the advice of the Chairman, a copy was sent to the South Indian Railway with a request to the Traffic Manager to give the subject his careful consideration, and to ask if that railway could make any concession as suggested in the above resolution.

2. UPASI BUYING AGENCY.—To date, 62 planters have sent in their applications for membership to the Agency. At least 100 are required before an actual start can be made.

3. DOCK CHARGES.—The South Indian Association have replied to the letter sent them, as referred to in Report No. 18, Item 3, saying:—"The London Dock Charges have already received the attention of this Association in conjunction with the Indian Tea Association, and it is feared that, at the present moment, there is very little chance of any further reduction in the charges and dues levied by the Port of London Authorities. The matter, however, will not be lost sight of."

4. INCOME TAX, UNITED KINGDOM.—In continuation of Item 2, Report No. 20, the South Indian Association have forwarded copies of a circular to all members giving the finding of the Commissioners in the Test Case. They express their opinion that Section 43 of the Income Tax Act 1918 is continued in force for the year in respect of which the Company's application was made. The S. I. A. have also forwarded a copy of a Memorandum, which is to be passed on to Members of Parliament with whom members are acquainted, asking them to oppose the clauses in the Finance Bill dealing with Sections 43 and 44 and Rule 3 Misc. Rules, Schedule D, Income Tax Act, 1918. Copies of the above are being published in this week's "Planters' Chronicle" for information.

(Signed) C. H. BROCK, Acting Secretary.

INCOME TAX ACT, 1918—Sections 43 & 44.

With reference to para 4 of the Secretary's Report published in this week's issue, the following is a copy of the Circular and Memorandum, mentioned in the Report, which have been issued by the South Indian Association in London :—

London, 17th May, 1921.

TO ALL MEMBERS.

Dear Sir(s),—For your information I append copy of the judgment delivered on the 10th May by the General Commissioners of Taxes for the City of London in the case of the *Meppadi Wynaad Tea Co., Ltd. v. C. F. Baker (Inspector of Taxes)* :—

> "The Commissioners, having regard to the provisions of Section 14 (2) of the Finance Act, 1920, and the absence from the list of enactments repealed contained in the 4th Schedule of that Act of Section 43 of the Income Tax Act, 1918, are of opinion that such last-mentioned Section is continued in force for the year in respect of which the application is made."

The Inspector of Taxes expressed dissatisfaction with the above decision, and is requesting that a case be stated.

It has been suggested that steps should be taken to secure opposition to the clauses in the Finance Bill dealing with Sections 43 & 44 and Rule 3 Misc. Rules, Schedule D, Income Tax Act, 1918. The enclosed Memorandum has been prepared, and I am to recommend that Members should forward a copy of this to those Members of Parliament with whom they are personally acquainted: requesting their assistance and active co-operation in this important matter. The Committee consider this course to be preferable to a general circular to Members of Parliament from the Association.

Further copies of the Memorandum can be obtained on application.

Yours faithfully,
W. H. PEASE, Secretary,
South Indian Association in London.

MEMORANDUM.

FINANCE BILL, 1921.

The following Ways and Means Resolutions passed in the House of Commons on 25th April, 1921, deal with matters of paramount importance to the general body of tax-payers :—

1. That Sections forty-three and forty-four of the Income Tax Act, 1918, shall be deemed not to have been continued in force as respects the year 1920-21.
2. That paragraph (1) of Rule 3 of the Miscellaneous Rules applicable to Schedule D shall not apply, and shall be deemed never to have applied, in any case where the person charged has continued to carry on throughout the year of assessment the trade, profession, employment, or vocation in respect of which the assessment was made.

With regard to Resolution (1), Sections 43 and 44 dealt with relief applicable to cases in which, owing to circumstances directly or indirectly attributable to the war, the profits of the year of assessment fell short of the sum assessed. Whatever may have been the intention of Parliament when the Finance Bill of 1920 was under debate, it is contended that the Finance Act, 1920, as finally passed, did not deprive the tax-payer of the benefit of these Sections.

With regard to the second resolution, Rule 3 Misc. Rules Schedule D embodies relief first introduced in 1842, whereby a person charged under Schedule D who ceases to carry on the trade, or dies or becomes "bankrupt before the end of the year of assessment *or from any other specific cause* is deprived of or loses the profits" is entitled to relief from the Income Tax Assessment of that particular year. This provision was never under debate in Parliament in 1920, but the Government now propose, by legislating in the Finance Act 1921, to so limit this relief for 1920-21 that it does not apply to cases of continuing ownership, thereby virtually depriving the tax-payer retrospectively of a statutory right which has been in existence for many years. The effect of the resolution is to change the words in the Rule —"*or* from any other specific cause" to "*and* from any other specific cause."

Such retrospective legislation as now proposed is inequitable, undesirable, and quite contrary to recognised principles, and will inevitably create an atmosphere of uncertainly in commercial circles.

Trade and industry are to-day in a critical condition, and it is known that there has been wide recourse to borrowing in order to pay taxation this year and, therefore, it is most unjust that reliefs hitherto given should now be withdrawn ; further, it must be borne in mind that it was in general contemplation during the debates on the Finance Bill 1920, that future assessments would, in accordance with the implied intention of the Chancellor, follow the recommendations of the Royal Commission on Income Tax and be based on a single year ; this would of itself have afforded relief partially, if not wholly, equivalent to that under Sections 43 and 44 above referred to.

The recent abandonment of the Revenue Bill, which provided for assessments for 1922-23 and onwards being based on the profits of the preceding year, deprives the tax-payers of a relief to which they would have been entitled, and, in addition, Excess Profits Duty is being removed at a time and in such a manner as to prevent many businesses setting off deficiencies, resulting from the present depression in trade, which they were reasonably and legitimately entitled to rely on to reduce their liability for duty on profits, a considerable portion of which was earned prior to the commencement of the war.

It is urged, therefore, that the clauses in the Finance Bill incorporating the above resolutions should be strenuously opposed, as, in the present state of commerce and industry, which is to-day over-burdened with heavy taxation, it is imperative that the tax-payer should be granted generous measures of relief.

Indian Tea Association (London).
South Indian Association in London.
17th May, 1921.

LABOUR CODE.

Recruiting Licenses.

The following rules made by the Indian Immigration Committee under 161 (ii) (a) of "The Labour Code, 1912" appear in the *F. M. S. Government Gazette* of May 20:—

1. Free or assisted tickets for *bona fide* labourers and their families may be issued on behalf of the Indian Immigration Committee in Negapatam by the Superintendent of the Emigration Depot, and in Madras by the Emigration Agent:—

(*a*) to all holders of Kangani licenses issued on the authority of the Committee;

(*b*) to all labourers and their families who have not been recruited by any Kangani, but present themselves at the Government Depots at Negapatam and Madras, and promise to work in the Straits Settlements, Federated Malay States, Johore, Kedah, Perlis or Kelantan.

2. Kangani licenses authorising a Kangani to recruit labour for a particular estate may be obtained only from the Deputy Controller of Labour, Penang.

3. Every Kangani license shall show the amount of commission payable for each labourer recruited, and the wages payable to labourers to be recruited, and shall stipulate that nothing shall be recovered from any labourer for expenses incurred on his behalf or advance made to him previous to his arrival at the place of employment.

4. (i) The Controller or Deputy Controller of Labour may refuse to issue Kangani licenses, and may cancel licenses previously issued for an employer.—

(*a*) who has been convicted of an offence against the provisions of "The Labour Code, 1912";

(*b*) whose assessment under Chapter XIII of the Labour Code for any quarter has not been paid at the expiration of six months from the date of receipt of the assessment notice;

(*c*) who has failed to observe the conditions set forth on Kangani licenses previously issued to him.

(ii) The Controller or Deputy Controller may, in addition, cancel or suspend any such licenses for any reason that he thinks fit, provided that suspension is reported by him to the Indian Immigration Committee at their next meeting.

(iii) An employer who is dissatisfied with the decision of the Controller or Deputy Controller under clause (i) and clause (ii) hereof may appeal to and appear personally before the Indian Immigration Committee, whose decision in the matter shall be final.

(iv) The Controller or Deputy Controller may in exceptional circumstances extend any license beyond the period for which it was issued.

5. The Controller or Deputy Controller of Labour may refuse to issue a Kangani license to a Kangani whom he considers to be unsuitable, and may cancel the license of any Kangani on reasonable proof of misconduct.

6. No Kangani license will be granted to any applicant who appears to be under the age of 21 years.

The rules published as Notification No. 3325 in the *Gazette*, dated the 20th December, 1912, are hereby cancelled.

PINK DISEASE IN MALAYA.

Since 1912, Pink Disease, due to the fungus *corticium salmonicolor*, has been the cause of more or less anxiety to many managers of rubber estates in many parts of the Malay Peninsula, says the *Malayan Tin and Rubber Journal.* In 1914 when the Department of Agriculture, F. M. S. published its Bulletin No. 21, by Brooks and Sharples, the writers therein stated that "at the present time it is the disease that requires the greatest amount of attention in many districts. We have seen several estates in which 10 per cent. of the trees were affected, and in a few neglected plantations no less than 25 per cent. were attacked." In an article by the same writers contributed to the International Rubber Congress, Batavia, 1914, it is stated that " the most serious affection of rubber trees in Malaya at the present time is Pink Disease, of which there has been a considerable increase during the last eighteen months. The disease is most prevalent in certain districts, intervening tracts of country being almost free from it."

Though since 1914 " Pink Disease " has perhaps lost its pre-eminent position amongst the diseases to which Hevea Braziliensis is liable, yet in many districts it has called for considerable care and attention on the part of the managements of estates to keep it under control. Generally speaking, it has been those districts having a particularly heavy rainfall, or at least, continuous spells of rainy weather, where Pink Disease has given most trouble, and as example of such districts we might mention South Perak, (Sungkai-Trolak) and Taiping districts. In such districts the disease has occurred with intermittent severity, and on some estates the trees have been permanently damaged and weakened in vitality by these attacks.

While the selling price of rubber was sufficient to allow a working, if not a great profit, such a matter as the proper care and attention to the treatment, both prophylactic and therapeutic, of Pink Disease was possible, and most European-managed estates carried it out more or less properly. Oriental owners of estates, too, generally did their best to suppress this disease, and where any were negligent in attending to this matter (and this was comparatively restricted to the very small native properties) the officers of the Department of Agriculture, with the help of the " Pests Enactment," were able to compel the remiss owners to carry out the proper treatment.

At the present time, however, the whole condition of the rubber-producing industry has undergone a change due to the depression in the rubber market, and what a management of a rubber estate could afford to do when it could sell its product for a dollar a pound, and make a profit of sixty cents a pound, may be absolutely impossible when the selling price of rubber is reduced to thirty cents, and managements are selling at a loss of several cents a pound, especially where the management has no—or but little—reserve capital or funds placed to reserve from profits to fall back on, to compensate for the loss on the sales of rubber.

Owing to this depression in the rubber market, many small rubber properties (principally native-owned) have been abandoned during the last few months, and there are many others belonging to private individuals (both European and Oriental) and small syndicates where the owners have not the necessary funds at the present time to keep their properties in a proper sanitary condition. Many such owners have stopped weeding, and, where the trees are in tapping, have stopped practically all work on the properties except tapping and those other duties connected with the manufacture of the rubber. The discontinuance of weeding, the allowing of lalang to become established in the soil and the areas of younger rubber trees to become covered with blukar and secondary growth, affect adversely, in the main degree, the owner of the property only. Failure to attend to diseases and pests, which is also included in the abandonment of areas planted with Hevea, has, or at least, can have, however, a more spreading effect, so that not only is the owner of the abandoned property adversely affected, but the diseases may spread from such property to surrounding estates, so that huge areas may suffer in consequence.

This complete or partial abandonment of areas planted with rubber trees is not, therefore, merely a private matter affecting the owner of the abandoned land only, but is a matter affecting the public welfare and the rubber industry as a whole. It appears that Pink Disease is the disease which could cause most trouble in this way, affected abandoned estates becoming breeding grounds for the causative fungus, and thus act as a continuous source of infection for the trees in the surrounding districts. The treatment of cases in the surrounding districts would be never-ending, for a continuous supply of spores would be maintained from the abandoned area.

At the annual meeting of the P. A. M., held at Kuala Lumpur on the 19th of May, this matter was brought up, and it was stated that there was "a serious spread of Pink Disease north of Selangor and in Lower Perak. Pink fungus was increasing to an alarming scale especially in native holdings which had been abandoned, or were making a living from hand to mouth, and this was a serious menace to the planting industry." The seriousness of this matter cannot be minimised, especially at the present time. The rubber-growing industry has sufficient worries and troubles now over the depressed state of the market, without running any risk of adding to its afflictions, and it does not take much comprehension to appreciate fully the possibilities of an epidemic of Pink Disease under the present existing conditions.

Unfortunately, the method of coping with this menace is not as easy as might appear on the surface. In the past, the inspectors of the Department of Agriculture were able to serve notices on those owners or managers of estate who refused to carry out the requisite measures for combating Pink Disease, and in the event of a non-compliance with these instructions, the matter became punishable under the "Pests Enactment." Now, however, in many cases, such a procedure would be of little avail. In the case of abandoned estates the owner has no money to pay coolies to carry out the work of treating Pink Disease, neither could he pay any fine inflicted by the magistrate for failing to carry out the work. Still, the most important point would not be the punishment of the offender, but the eradication of the disease, and the imprisonment of the owner in lieu of his paying the fine would be useless.

The fact remains that areas planted with rubber are being abandoned, and the proper care of such areas, so that they do not become a menace and a source of danger to other estates, has to be considered. Unfortunately, the inspectorial staff of the Department of Agriculture is sadly deficient in number. We understand that the Department is attempting to find the locations of areas of rubber planted lands which have been abandoned, together with an estimate of their acreage, with the view of being in a position to keep such areas under special supervision, and thus to be in a position to deal with any outbreak of Pink Disease which may occur on them. Whether or not the owner of such abandoned land will be responsible for the payment of any work carried out on his land by the officers of the Department of Agriculture, or at their instigation, we do not know. Still, it is impossible to get money from people who have none, and therefore, it would seem that in many cases, and particularly so in the case of the very small native holdings, the Government itself will have to meet such expenditure.

PLANTING PROGRESS

We recently read in the columns of a local contemporary that one of Malaya's veteran (retired) rubber planters, during an interview granted on the occasion of a very recent visit to this country, expressed his disappointment at the lack of progress made by the rubber-growing community during the past few years. This is, indeed, a sorry indictment against the present generation of planters, and not the less humiliating for being true, for, although one can easily conceive of factors which may palliate "outside" criticism, a criticism emanating from one so intimately connected with Malayan rubber-planting cannot but be regarded as deserved. However, without making any undue claim to abnormal perspicacity, we are happy in being able to find such excellent and weighty confirmation of the views so repeatedly expressed in these columns.

Only as recently as the March 31 last, in our remarks upon "Scientific Planting," we expressly deplored the stagnation of planting activities during the past few years; so that the opinions of this old-time Manager and Visiting Agent do not occasion us any surprise. His condemnation of, ***inter alia***, modern planting distances is, in our opinion, a justifiable reproof to the present lack of application of that scientific knowledge which is more abundant and more available now than it was in the "good old days" with which we are so unfavourably compared. (Moreover, the greater scientific knowledge and its availability now as compared with former days makes present apathy the more culpable). There is, of course, no certain knowledge that the former generation of planters would have utilised to greater advantage our present scientific knowledge of rubber questions had it been available in their day; though it must be admitted that they made the very best of their "rule-of-thumb" methods. They, however, realised that such methods were only makeshift ones, which would some day cede to definite scientific principles; whilst present planters, even though in possession of that superior scientific knowledge which the "old school" could only anticipate, have failed, and still fail, to show "signs of improvement."

It has been suggested that the Assistants of to-day are not so well trained as of yore, and perhaps this is true. Certainly "the social round" occupies a greater proportion of the Assistant's curriculum to-day than it did twenty years ago, though this may be but one of the penalties of the march in local civilisation, and to a large extent is beyond the modern man's control.

Another cause to which the lack of progress is attributed is that "some of the visiting agents in this country now could hardly be called good, capable and experienced planters." We are aware that the question of visiting agents is rather a vexed one, and that it might reasonably be considered beyond any but first-hand criticism; but it seems obvious to us that only a very strong conviction, based upon certain knowledge, could have evoked such a statement from such a source. Naturally, if the teachings of science are to be disregarded in favour of the advice of inexperienced and inexpert visiting agents, progress becomes not merely difficult, but impossible. Argued on these lines, however, the actual planter is less blameworthy for lack of progress than the system which condemns him to carry out his duties in a manner which generally has nothing more to recommend it than the whim of the V. A.: and we are confident that we are voicing the sentiments of the planting community in general in stating that, before true progress can be expected, improvements will have to be effected in "the system." *Malayan Tin and Rubber Journal.*

TEA IN AUSTRALIA.

It will be remembered that towards the middle of last year urgent representations were made to the Commonwealth Government with a view to the re-imposition of an embargo upon the importation of foreign-grown teas.

In August last, the Commonwealth Government replied that the question of giving preference to Ceylon and Indian teas would receive consideration in connection with the tariff proposals which were due to come before Parliament at an early date.

Nothing further was heard for some months, and in December last the Ceylon Government, at the request of the Chamber of Commerce, made further representations on the subject. However, no satisfaction was obtained, and the Rt. Hon. Mr. William M. Hughes, the Premier of Australia, when he passed through Colombo quite recently, declined to make any statement with reference to the matter.

It must be pointed out that, when the representations for a re-imposition of the embargo upon Java and other foreign-grown teas was first mooted, the tea industry in this country was passing through an almost unprecedented period of depression. Although very large quantities of cheap Java teas are being still imported into Australia, there is now an increasingly strong demand in that country for well-manufactured teas of good quality from Ceylon.

In view of the announcement made a few days ago that the Commonwealth Parliament had begun the consideration in detail of the various items of the highly protective new tariff, the subject has, very naturally, once again come to the fore.

The *Times of Ceylon* learns, from a Ceylon man who has quite recently returned from Australia, that, in view of the improved position of the tea market, there is very little likelihood that the Commonwealth Government will consider the imposition of a preferential tariff on tea for the benefit of Indian and Ceylon producers. "Such a step," our informant declared, "would be dead against the Commonwealth Government's policy of a cheap breakfast table."

At the same time it was pointed out that, provided Ceylon continues to pay close attention to manufacture, there is every reason to hope that the Australian demand for teas of good quality will continue. It is true that, at the beginning of the year, Australia had on hand huge stocks of tea, but these stocks have been now practically exhausted. The shipments to Australasia to date this year amount only to 7,500,000 lbs., as against 12,750,000 lbs. for the corresponding period of last year. It is obvious, therefore, that Australian importers have considerable leeway to make up, and it is becoming apparent that there is a shortage of Ceylon tea in Australia at the moment.

As the Australian blenders aim at a distinctive Ceylon standard, there is likely to be a constant demand for good quality tea with the Ceylon flavour, which neither Java nor India will be able to meet.

Another hopeful factor is that Australia has now recovered, to a very considerable extent, from the financial embarrassments with which she was faced early in the year. These troubles were largely due to the over-buying which took place some six or eight months ago. Most of the Australian wool and wheat has been now sold and, in consequence, there has been an improvement in business generally.

The teas now coming forward from Java are, generally speaking, well made, but they lack the distinctive Ceylon flavour. Java teas are being landed in Australia at anything from four pence to six pence cheaper than Ceylons, but there is no reason why local producers should be unduly alarmed at this, for, the cheaper it is possible for Australian buyers to obtain Java teas, the higher will be the price which they will be able to pay for Ceylons. For instance, if Java tea can be purchased at eleven pence, the Australian buyers will be prepared to pay, say, 1/6 for Ceylon tea, with which to make a satisfactory blend.

The outlook is distinctly hopeful, but if the Ceylon producers return to old time slipshod methods of manufacture the effect upon the Australian market will be inevitably disastrous.—(" Times of Ceylon.")

IMPERIAL TEA PRODUCTION.

Under the significative but hardly pithy title of "The production of tea in the Empire and its relation to the trade of the world," Mr. A. S. Judge, lately Chief Collector of Customs in Burma, contributes to the current "Bulletin of the Imperial Institute," a readable and patently informed article of over 30 pages on a subject which is of absorbing interest to readers in this colony. From a picturesque survey of the spread of tea-drinking historically considered he passes to a comprehensive review of production in all the countries of the world where the cultivation and manufacture of tea now rest upon an organized basis, and thence to a comparative examination of the world's markets, the present position and future prospects of Imperial enterprise in developing the tea trade being naturally his main ground of concern. Mr. Judge appears to have spared no pains in familiarizing himself with the facts of his subject, and shows himself an adept not only at marshalling these in their logical sequence, but in summarizing his comments thereupon in a fashion far more suggestive of the practical business mind than of the hidebound and academic viewpoint by which private enterprise is so frequently obstructed and discouraged when permanent officials presume to lay down rules and regulations for the proper conduct of commerce. We should like for instance to draw the attention of the Indian and Ceylon Governments to Mr. Judge's views as expressed in the concluding paragraph of his article: "There is no question regarding the soundness and ultimate prosperity of the tea industries of India and Ceylon: the immediate outlook for many estates is however very critical. An industry which supports at least 3 000,000 workers and their dependents in the two countries mentioned above is certainly deserving of sympathetic treatment by the local authorities." The story as outlined by Mr. Judge of the development of the Indian and Ceylon tea industry during the last half century, from the period in fact in which China and Japan produced practically all the tea consumed in the world, is one with which Ceylon readers will find it interesting to familiarize themselves if they are not already aware of the facts. The Indian industry had already experienced its first slump by 1870, from which it was then but just emerging. Native cultivators in Java were experimenting with the product in small patches, but large plantations with properly equipped factories were altogether unknown. Formosa was an unknown quantity, and Ceylon was given over to coffee. India contributed exactly 5 per cent. to the world's tea trade of some 300,000,000 lbs. The United Kingdom consumed 40 per cent. of the total, the United States 20 per cent., and Russia most of the balance. Twenty years later, with a world production of nearly 500,000,000, lbs., the United Kingdom's consumption percentage was stationary, that of the United States had sunk to 17 per cent., and new markets, apart from Russia, were consuming over 40 per cent. By 1900, with a total of nearly 600,000,000, the United States consumption had dropped a little lower still, other percentages being practically stationary. During these two periods the statistics of production showed surprising developments. By 1890 the Indian industry,with a planted area of 350,000 acres, was seriously endangering China's monopoly, and the industry in Java had made some progress, by far the greatest relative advance however taking place in Ceylon, where in twelve years 200,000 acres of coffee had been converted into tea plantations. It should be noted that the export trade of Formosa and Japan was also developed during this period. Planting extension in India and Ceylon continued rapidly through the 'nineties, the difference in the new acreage in the two countries being only 10,000, while in Java there was also much activity. The second big slump, just before the close of the century, Mr. Judge imputes to over-production arising from the competition between Ceylon and India. The outlook brightened however in 1905-6, by which time new outlets had been found, and China tea practically driven from British markets. Mr. Judge gives credit to Ceylon for having weathered the storm more successfully than India owing to our local industry being more compact and better organized, though it is said that the average yield per acre was at that period much greater in Ceylon than India (a condition that no longer obtains). It is also suggested that Colombo's accessibility as a port of call and virtues as a jumping-off point in the quest for new markets gave this colony a further advantage. Mr. Judge makes no mention of the fact that in the crisis still existing Ceylon has for a second time taken the lead of India in grappling with adverse conditions. It is possible that his views were actually penned before this fact had become apparent, nevertheless it has been for some months generally recognised by the Indian trade. This fact may or may not be imputed to the same alleged advantages, though one of these, the difference in yield per acre, does not now exist. It is finally not surprising that Mr. Judge should regard the present slump as considerably more serious than that of the 'nineties, the heavy stocks even now remaining and the continued absence of a demand from Russia constituting its gravest features. In this connection one or two warnings sounded by him are worth noting. There is firstly the fact of Java's growing competition, notably in the Australian market. It is just possible that the chagrin with which Brazilian rubber magnates have for years past viewed the results of the import of Hevea seed into Ceylon and Malaya may be repeated in the future in the case of Ceylon and Indian tea traders who were privy to the export to Java during the present century of Ceylon tea seed, the total imports from India alone amounting to 2,00 tons between 1900 and 1919. The good results even now accruing from the care given by the Dutch planters to the plotting and terracing of their estates, with the resulting conservation of humus and saving in manure unusual in Ceylon, are favourably commented on. It is of interest moreover to learn that the Brazilian growers of "mate" are seeking, not without success, for new markets for their produce in North America and Europe. This beverage hardly appears palatable from the description given, but the same might have been said of the first tea which found favour in the English market, "first brewed in a cask and drawn off like beer, a tax of 1s. 6d. being levied on each gallon." It certainly seems advisable that the movement to popularize "mate" outside its native habitat should be watched by those interested in tea.—(" Times of Ceylon.")

THE PRINCIPLES OF AGRICULTURE.

AMELIORATION AND IMPROVEMENT OF LAND MANURING.

This is the tenth article of this important series by a well-known agriculturist, appearing in "The Planter."

The next class of artificial manures which we have to consider is that known as the phosphatic. It is stated that practically all the clay lands, and especially where a high standard of agriculture is maintained, require the addition of phosphatic forms of manure. The principal sources of these phosphatic manures are bones, superphosphate of lime and basic slag.

Bones have been used as a manure for a considerable length of time. Eventually it was found that such excellent results followed from their use as a manure that at the beginning of the 19th century a very great demand for that form of manure was made by the agriculturists of England. Indeed the demand became so great that the various accumulations of bones in various parts of the world had to be drawn upon to satisfy it. It is stated that in 1822 Germany exported to England no less than 33,000 tons of bones Not the slightest sense of delicacy was shown as to the source of these supplies of bones, and Liebig, the great German chemist, who had made valuable researches into the composition of bones, and from researches was able to appreciate the value of bone and bone derivatives as manures, wrote as follows :—

" England is robbing all other countries of the conditions of their fertility. Already in her eagerness for bones, she has turned up the battlefields of Leipzig, of Waterloo and of the Crimea ; already from the catacombs of Sicily she has carried away the skeletons of many successive generations. Annually she removes from the stores of other countries to her own, the manurial equivalent of three million and a half of men, whom she takes from us the means of supporting, and squanders down her sewers to the sea. Like a vampire she hangs upon the neck of Europe, nay, of the entire world, and sucks the heart-blood from nations, without a thought of justice towards them, without a shadow of lasting advantage for herself.

Though other sources of phosphatic manures have since been found other than bones, there is still a great demand for bones. At one time the bones collected from the above mentioned sources were merely broken up into smaller pieces ("half inch," "quarter inch," or bone meal) in bone grinding works and straightaway added to the soil. The smaller the particles in which the bone manure is added to the soil the quicker its manurial action. It has been found that on well cultivated soils, half-inch bones take, on an average, about seven years for their complete disintegration. This disintegration is brought about by "weathering." Bones have the following average percentage composition :—

Moisture	8·38
Organic matter	31·12
Calcium phosphate ...	49·45
Calcium carbonate ...	9·56
Calcium sulphate	trace
Alkaline salts	
Silica	1·51

The calcium phosphate ($Ca_3 P_2 O_8$) in the bones, the source of the phosphoric acid, is insoluble, and must therefore be changed in composition to a soluble form before it can be of any service as a manure. This is brought about by the slight acidity of the water in the soil, due to the presence of nitric acid and carbon dioxide in solution, through the agency of which the insoluble calcium phosphate ($Ca_3 P_2 O_8$ is changed into such phosphates as dihydrogen calcium phosphate $Ca H_4 P_2 O_8$), or calcium superphosphate and dicalcium hydrogen phosphate ($Ca_2 H_2 P_2 O_8$) both of which are soluble more are less in the water of the soil.

Now-a-days, bones are sent to factories where they are carefully sorted, those suitable for cutlery and for glue making being picked out before the remainder are put into the grinding mill and reduced to bone meal. All fatty matter is removed from the bones by either steaming at a low pressure or by treating with benzene which dissolves out all grease. The residues left after all the nitrogenous matter has been extracted from the hard bones as gelatine or glue are crushed to a fine powder and sold as "steamed bone flour."

When bones are treated with sulphuric acid, amongst the chemical actions which take place, the calcium phosphate in the bones is converted into calcium superphosphate.

$Ca_3 P_2 O_8$	$2H_2 S O_4$	$2 Ca S O_4$	$Ca H_4 P_2 O_8$
calcium phosphate	sulphuric acid	calcium sulphate or gypsum	calcium superphosphate

which is soluble. The resulting mass is known as bone superphosphate and as a manure is beneficial for most crops and supplies the land with soluble phosphoric acid and a small quantity of nitrogen.

The discovery of the process of manufacturing superphosphates from the natural occurring rock phosphates by Lawes has been one of the greatest events in the foundation of the artificial fertiliser industry. Phosphates occur in rocks in a crystallised form as apatite and a noncrystallised form as phosphorite. Apatite is of two kinds, the green from Canada and red from Norway. Canadian apatite contains from 70-90% of calcium phosphate combined with calcium fluoride. The Norwegian apatite contains about 78% of calcium phosphate combined with calcium chloride, and is preferable to the Canadian on account of its greater solubility.

Phosphorites occur in most countries. Uncrystallised forms of calcium phosphate are found in Cambridgeshire and neighbouring counties as "Coprolites". These are brown or greyish nodules, and are said to be the fossil dung of extinct animals. These contain nearly 60% of calcium phosphate. As these various forms of calcium phosphate occur in nature, they have very little fertilising value. When, however, they are ground to a fine powder and treated with a requisite amount of sulphuric acid, an action takes place similar to that when bones are treated with sulphuric acid the resulting substance being a mixture of soluble calcium superphosphates and calcium sulphate. This mixture is the commercial calcium superphosphate or superphosphate of lime. The calcium superphosphate is not separated from the calcium sulphate, the latter not only being non-harmful, but also possesses some fertilising value. It is estimated that in the few years preceding the late war the world's annual production of this artificial manure was about ten million tons.

For commercial purposes it has been found convenient to have a standard by which to adjudge the value of the various grades of superphosphate. The amount of soluble phosphate is determined by analysis as $P_2 O_5$ (phosphoric oxide) and from that the amount of calcium phosphate $Ca_3 (Po_4)_2$ is calculated. It must be remembered that such results are merely conventional as the superphosphate contains neither phosphoric oxide ($P_2 O_5$) nor calcium phosphate $Ca_3 (Po_4)_2$.

The effects of a phosphatic manure on plant growth are that it favours root development in the early stages of the growth and that it hastens maturity in the latex stages. Such manures also increase the feeding value of fodder crops. From the horticultural point of view superphosphates are valuable for inducing hard growth in plants which are becoming too sappy.

Basic slag which has come into importance during the last twenty years as a manure is a by-product in the manufacture of steel from pig-iron which contains considerable quantities of phosphorus. Basic slag was formerly called basic cinder or Thomas' phosphate powder. In the manufacture of steel it is highly desirable to remove the phosphorus, and this is done by blowing air through the molten mass of iron to which lime has been added. The phosphorus is thus oxidised to phosphoric acid, and this in turn combines with the lime forming phosphate of lime, in which form it is withdrawn as a slag. The slag is then ground to a powder, and this is applied to the soil. When basic slag was first obtained as a slag from the Bessemer process for making steel (1879) its fertilising properties were not recognised. It was not until 1884 when John Wrightson made his experiments that agriculturists became aware of its manurial properties.

As in the case of nitrate of soda and sulphate of ammonia as sources of nitrogen as a manure, so in the case of superphosphate of lime and basic slag, the agriculturist has to weigh carefully the advantages and disadvantages of each form of phosphate giving manure. The superphosphate undoubtedly, is more rapid in its action than basic slag, and hence for immediate manurial effects the superphosphate is to be preferred. Still, if the agriculturist is far seeing enough this objection to basic slag can be largely overcome. During the longer period the insoluble phosphate of the slag will be acted upon by the natural solvents of the soil, and so a considerable proportion of the phosphoric acid will be available when the plants require it.

From other points of view it would seem that basic slag is preferable to superphosphate of lime in many cases. For grass lands, especially where the land has been under pasture for several years, the basic slag gives excellent results. This is probably due to the presence of considerable quantities of acids in the soil formed by the decomposition of the vegetable matter, which act upon the basic slag, thus quickly liberating a large portion of the phosphate and rendering it available as a plant food. Basic slag further produces excellent result where there is any tendency to sourness in the soil. In such a case as this, superphosphate, being an acid substance, would only increase the natural acidity of the soil, but basic slag being alkaline, tends to counteract that acidity. For roots, potatoes, hops and other short season crops superphosphate is usually better than basic slag, though which plants of the order Cruciferae which are liable to be affected by the disease known as " Finger and Toe", " Anbury," or

"Clubroot" basic slag might be preferable unless an addition of lime is also made with the superphosphate.

We have now reached the last of the artificial fertilisers we wish to consider, *viz.*, the potassic fertilisers. These fertilisers have not been so much used as nitrates and superphosphates. The system of agriculture by which the straw has been returned to the soil as a manure, has tended to keep the potash on the farm. The straw contains a large proportion of the potassium taken up by the plant while the grain and the meat of the cattle raised contain much of the phosphates. With root crops, however, which require large quantities of potassic plant food, it is necessary to add potassic manures to the soil.

Practically all the potassium yielding forms of artificial manures have come from Germany, where the mines at Stassfurt and Leopoldshall contain huge deposits of potassium compounds, principally as "sylvine" (potassium chloride. KCl), as "carnallite"—a double chloride of potassium and magnesium (KCl, $MgCl_2$, $6H_2O$) and as a mixed sulphate in "Kainite" (K_2SO_4, $MgSO_4$, $MgCl_2$, $6H_2O$). As far as is known there are no other deposits of these salts of any economic importance existing elsewhere. The increase in the use of these potassium salts as manures has been remarkable. Before the war nearly ten million tons per annum of the crude salts were sold mainly for agricultural purposes.

The main effects of potash on plants are three in number. It facilitates either the production or translocation of the sugars and the starches from the leaves. Thus it will be obvious of what great value such a form of manure must be to root crops like sugar beet, mangolds and potatoes. The straw of cereal crops grown on soils possessing a sufficient supply of potassium will be stiff and strong and thus less liable to be "laid" by the wind or storms. Further plants grown on soils containing a shortage of potassium salts are very liable to become diseased, especially during unfavourable seasons. Grass growing on soils in which the supply of potassium is limited becomes very susceptible to attacks by the fungus Epichloe.

Wood ashes contain from 5·15% of potash, the ashes from the leaves and young twigs containing more than those from the older stems and branches. The wood ashes may be used as a manure as they are, or the potassium carbonate, which is the principal potassium constituent of the ashes, may be changed into potassium nitrate by mixing the ashes with organic matter and lime. During the decomposition of the organic matter nitric acid is formed which combines with the lime forming calcium nitrate. This calcium nitrate or nitrate of lime in turn is acted on by the potassium carbonate resulting in the production of potassium nitrate. The whole mixture forms an excellent manure.

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The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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WEATHERING THE STORM.

We have often enough referred in these pages to the fact that it is seldom our three main industries are adversely affected at the same time on the home markets, and although all are sharing in the general depression it is only with one of them to-day that we are particularly anxiously concerned—Rubber. Coffee, after a spell of really bad markets during the war, gave excellent returns until this season when, although much lower prices are the rule, the position, in view of the fall in the rupee is not abnormally bad. Tea, of course, has had a very trying time, and we join in the general relief at the stronger demand evidenced recently, and which we can but hope will be maintained if not strengthened as time goes on. The Rubber Market, on the other hand, continues to give rise to various schemes by which it is hoped to improve the price of the commodity, and most of these centre round the question of "to tap or not to tap." A correspondent of the *India Rubber Journal* is in favour of direct action, and advocates that shareholders either by writing or in person at Company meetings, should press upon Boards of Directors the necessity of ceasing to tap for a period. This, of course, is nothing new, but what is of interest is the varying reasons given by planters and others who urge this policy. They fall mainly into two groups; one, relying upon the old tag of supply and demand, is convinced that the only relief for a largely over-stocked market is to cease supplies until stocks are ex hausted, or nearly so, the other coquetting with the idea that the market is in the hands of a few dealers or some form of cornering combine which is keeping prices down. The argument of the latter school contains some sound points. They say, for example that, even though stocks in London are 75,000 tons, this represents only 3 months supplies on a consumption yearly of 300,000 tons. If this were so and there were no stocks in consumers' hands a 3 months supply would not be enough to cause the present abnormal depression. They do not admit that stocks in consumers' hands are as large as is made out. Naturally, a factory short of the raw material is not going to bleat about it, and certainly we have seen, particularly in the American Press, obviously inspired articles by "Our special Commissioner" who has seen millions of tyres—at least six months supply—stored up, not to mention a further 3 months stock of the raw material. This form of "bear" movement is a common one, of course, and there is much to be said for those who refuse to be scared into complete cessation. After all, stocks in London in pre-war days, and even up to 1919, were as much in proportion to annual consumption as they are now ; but since then the Eastern markets like Singapore and Colombo have accumulated large stocks, and we have recently seen the attempt by Malayan planters to show that with these plus stocks afloat and in consumers' hands the actual stock of the raw material is probably 300,000 tons, a year's supply. This is in fact the argument of the "cease all tapping" school. The attitude of the whole-hoggers may be expressed by a repetition of the letter referred to above. The writer says :—"Judging from the remarks of some Chairmen at recent meetings of rubber companies, opinion seems to be gaining ground that the only way to deal with the crisis is by a waiting policy, thus eliminating the weaker and so paving the way for a recovery, and, in time to come, a probable shortage leading in turn to its troubles and after-effects. The policy of attrition is frankly one of despair. It seems to me the fear in the minds of the financially stronger producers is that any scheme of ceasing to tap for three to six months will benefit, immediately, all those who refuse to conform and penalise those who do. Surely this is a very short-sighted view. A return of the industry to a remunerative basis, as a whole, is of vastly greater importance than the unfair benefit which would be reaped by a few during the process."

The question, therefore, resolves itself into this: either we cease tapping, or we continue to tap in a modified form, and in such a way that expenses are cut down to a minimum, in fact to a point where even at 7d. per lb. average no loss is incurred. The restriction of production by means of alternate daily tapping is now generally in force in all rubber-producing countries of the east. By this means, and by rigid economy in estate management, a number of companies and even private proprietors have been enabled to carry on. If some means could be found of going even further in this reduction of costs, it seems reasonable to say that many estates will be saved, and by continuing the policy of alternate daily tapping crops will be kept down sufficiently to bring the market sooner or later to a reasonable paying basis. If it is true that all this talk of enormous stocks in consumers' hands is a myth, then the cessation of all tapping, even for three months, "is frankly a policy of despair" to quote our friend, and the better policy would be, as we read some time back in the *India Rubber World*, to produce at a much lower cost than at present a high grade product, a policy which would safeguard producers from any such set backs as they are now experiencing, either from lack of demand through natural laws or from the machinations of any possible combine of manufacturers.

The problem, then, is to carry on with alternate daily tapping at a greatly reduced cost, and we wish to put before our readers the main points of a scheme which it is proposed, we hear, to apply in at least one district in South India. The idea is based on the explosion of the old fallacy that the rubber tree yields best in the early morning. For some reason we have accepted in the past the dictum that evening tapping was not a business proposition, and it is an extraordinary thing that this idea has gained so much ground without any figures, to our knowledge, ever having been produced in S. India certainly, to back up the statement. Experiments are now in progress by which morning tapping is being compared with afternoon tapping, and there is so far no reason to believe that any material reduction in crop will ensue by tapping late in the day. Even if it were proved that morning tapping was best, the percentage of loss in the afternoon would have to be very considerable to stultify the aims of the producers. It will have been surmised by now that the idea comprises morning and evening tapping, and in order to maintain the alternate daily system this is carried out as follows:—The Estate is divided into four parts instead of two, as at present; we may call them Blocks 1, 2, 3 and 4. The same coolies who have tapped block 1 in the morning, and who have finished their day's work ordinarily by noon, are turned out again in the afternoon to tap block 3. Similarly, another batch of labour operates on block 2 in the morning, and block 4 in the afternoon. To avoid trees being tapped in the afternoon continuously, and so as to retain uniformity, the blocks are changed over weekly from morning to evening, and *vice versa*, by means of cessation of tapping on Sunday afternoon, which day thus forms the equivalent of the dog watch at sea.

By this system we arrived at tapping twice the number of tree each day as at present, for the same cost. We presumably get the same crop, or at most a comparatively small reduction enabling us, if not to halve the cost of tapping, to reduce it to a point where sales at 7d. such as are quoted this week become profitable. We put the idea before our readers in the hope that it may elicit discussion. We do not recommend it, and in fact have our own objections to it which we propose to include in a further article on the subject at a later date. But we are quite open to conviction, and will gladly give the fullest publicity to both opponents and supporters of the scheme. The times are such that it is only by some such drastic reduction in costs, or by equally drastic measures of restriction, that we shall be able to raise the market from the slough into which it has fallen, whatever may be the cause.

COORG PLANTERS' ASSOCIATION.

MINUTES OF THE ANNUAL GENERAL MEETING, HELD AT THE NORTH COORG CLUB, MERCARA, AT 2 P. M. ON FRIDAY, JUNE 3RD, 1921.

PRESENT.—Messrs. W. M. Ball (Chairman), C. G. Maclean, S. P. Raymond, G. Pearce, A. E. Nicolls, W. E. Dickenson, A. S. Grove, E. P. Playford, T. Hext, W. Egerton (Honorary Secretary), and Hilton Brown, Esqr., I. C. S., Commissioner of Coorg, (*Visitor.*)

Before the meeting was formally opened the Chairman moved a vote of condolence to the relatives of Mr. E. L. Mahon and Mr. H. R. Trelawny (all standing.)

1. The Secretary read the notice calling the Meeting.
2. Minutes of the last General Meeting were taken as read.
3. Balloting papers were then opened with the following results :—

President	W. M. Ball.
Honorary Secretary	W. Egerton.
Delegates and General Committee ...	W. Egerton and F. Macrae.

COMMITTEE.

North Coorg.	South Coorg.
W. E. Dickenson ...	N. Schofield
A. E. Nicolls	F. Gerrard
S. P. Raymond	J. Hume
G. Pearce	F. Macrae
C. G. Maclean	W. A. F. Bracken
	P. G. Tipping

Mr. Ball, amidst applause, thanked the members for again electing him Chairman, but remarked that he thought it was time some younger member took it up.

4. Printed copies of the Honorary Secretary's Report having been circulated to all members, this was taken as read.

5. Coorg War Memorial.—Mr. Ball informed the Meeting that subscriptions had come in satisfactorily, and that good progress was being made with the work, he proposed that any balance over from this Fund should be handed over to the Mercara Cemetery Fund. This was agreed to.

6. Storing of an Emergency Ration of Petrol.—Read letter from the Commissioner of Coorg to the effect that there was no hope of this proposal being accepted by the Government of India.

7. Mr. Ball called the attention of Members to the meetings now being held under the auspices of Messrs Green-Price and C. S. Wuthia, for the purpose of obtaining a ballot in favour of the Amalgamation of Coorg with Madras, and proposed :—

"That this Association is opposed to any such amalgamation, and has every reason to believe that is the view of all the most important Coorg land-holders, and that the Honorary Secretary be instructed to write to the Chief Commissioner again, expressing our strong opposition to any action which would reduce the status of the Province."

This was seconded by Mr. G. R. Pearce, and carried unanimously.

8. Other business.—Correspondence with reference to the Anamallai Planters' Association, Railways, Hospital, and the U. P. A. S. I. Buying Agency was discussed.

With a vote of thanks to the Chairman, the meeting terminated.

(Signed) W. M. BALL,
Chairman,

(") W. EGERTON,
Honorary Secretary.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore,
22nd June, 1921.

SECRETARY'S REPORT No. 23.

The following are extracts from the proceedings of the Meeting of the Executive Committee, held on the 20th June, 1921, which are of general interest. Copies of the proceedings in full will be forwarded to the Executive Committee members as soon as possible :—

1. AGENCIES CLOSED ON 31ST MARCH, 1921.—The Secretary was instructed to write to all subscribers, who had cases pending on the 31st March, 1921 in any of the districts where work was discontinued on that date, asking them to send in particulars of their cases ; and arrangements are to be made for the settlement, as far as possible, of all cases which the Department introduced, or in connection with which the Department was in any way at fault.

2. COIMBATORE DIVISION.—The Committee resolved to reopen the Trichinopoly Agency, and place it under the control of the Coimbatore Division, and sanctioned the sum of Rs. 600, to be added to the Budget for this purpose.

3. LABOUR LAWS.—Read correspondence with the Government of Madras with reference to the proposals to repeal Act I of 1903, and to amend the Workmen's Breach of Contract Act. The Committee resolved that discussion on this should be left to the Annual General Meeting, and that the Government be informed accordingly.

4. "UPASI BUYING AGENCY".—The Secretary announced that, over 70 planters had applied for membership, and requested the meeting to appoint a Sub-Committee to control and manage the Agency. The Committee appointed the following to form a Standing Committee of the Upasi Buying Agency :—

Messrs. A. S. Dandison, Edwin Vincent, and the Secretary.

5. SUBSCRIPTIONS.—The Secretary read letters from various estates claiming a reduction in subscription for alterations in area and on Rubber temporarily abandoned. The Committee resolved that Rule I of the Association must be adhered to, and that all subscriptions due to the U.P.A.S.I. for the current year must be calculated on the areas which were declared by District Associations on the 15th of March last.

6. BENEVOLENT FUND.—With reference to Rule VII of the South India Planters' Benevolent Fund, the Committee resolved that the period during which any member of the Fund was absent on Military Service was not to be reckoned in the five years, within which time subscriptions amounting to Rs. 200 entitle a subscriber to Life Membership.

7. COCHIN HARBOUR COMMITTEE.—It was recorded that Mr. J. A. Richardson, M. L. C, had been appointed as a member of the Cochin Harbour Committee in place of Mr. H. Waddington.

(Signed) C. H. BROCK;
Acting Secretary.

PLANT DISEASES.

A DISEASE OF LIBERIAN COFFEE IN SURINAM.

A detailed account of a fatal disease of *Coffea liberica* is given by G. Stahel in *Bulletin* 40, issued by the Surinam Department of Agriculture, in March 1920. The disease is of special interest, as the author believes it to be in the class of the phlœm-necroses, or sieve-tube diseases, found hitherto only in herbaceous plants. The leaf roll of Irish potato and sereh of sugar cane are well known examples. The disease became noticeable during the early years of the century, and frequent reference has been made to it in the annual reports of the department since 1905. Stahel had already regarded it as a phlœm-necrosis in a preliminary report of December, 1917.

Serious losses of trees on a number of estates have occurred. The trouble appeared to be restricted to varieties of *Coffea liberica*, but a note at the end of the bulletin records recent cases, showing characteristic external and internal symptoms, on *Coffea arabica*. Trees under four years of age are rarely affected, and, as rule, they are already in bearing before the disease shows up.

SYMPTOMS.

External.—Two extreme forms of the disease occur, an acute and a chronic form, connected by intermediate gradations.

In the acute form (formerly regarded as a root disease), all the leaves of an apparently healthy tree wilt rapidly, and hang down, while still of normal hue; within a few weeks the whole tree is dead. It is characteristic of this form of the disease that the leaves do not drop off. If such a tree is dug out, the youngest roots are seen to be black and dead. In the chronic form the trees fail gradually; the leaves in order of age turn pale green and yellow successively, without wilting, and the older leaves fall off. Finally, only the very young leaves remain (they are frequently abnormally small), and these usually wilt and hang down without dropping off.

Internal.—If a shaving deep enough to enter the wood is cut from the branch of a diseased tree, bark and wood will be found firmly united, whereas in a healthy tree they separate easily. The innermost zone of the bark, especially at the base of the stem and on the roots of an affected tree, is brown and dry instead of being white and sappy. The wood of affected trees appears normal to the unaided eye. If, however, a section of the wood is compared with a similar piece from a healthy tree after treating both with iodine, it will be seen that the reserves of starch in the ground tissue are largely or wholly depleted. Microscopic examination of the bark brings out the essential characters of the disease. In the first place, the cambium is either feebly or not at all developed, which accounts for the firm union of bark and wood. While the ground tissue of the inner bark appears normal, the sieve-tubes are mostly or wholly dead, crushed, and usually filled with gum. In healthy trees, the sieve-tubes, in all but the innermost functioning zone of the bark, are in a similar condition, whereas in diseased trees they are disorganized even in that zone. The significance of this necrosis of the sieve-tubes in the functioning ring of the bark lies in the fact, according to the author, that they are the main or only conducting channels for the foodstuffs (carbohydrates, fats, amides, proteids) elaborated in the leaves. As a consequence, the reserves deposited in the ground tissue of the wood are drawn upon without being replenished, so that the root system becomes gradually or rapidly starved as the disease progresses upwards. An examination of eighty-one diseased trees showed phlœm necrosis present in the roots of eighty.

In 14 trees it extended up to the base of the stem.
" 15 " " " 1 foot up the stem.
" 13 " " " 2 feet " " "
" 14 " " " 3 " " " "
" 12 " " " 5 " " " "
" 9 " " " 7 " " " "

The author concludes that the necrosis of the bast starts in the roots, and spreads up in the stem and branches. A close connexion between the extent of the necrosis and the depletion of the starch reserves could not be made out.

CAUSE OF THE DISEASE.

The external symptoms suggested either an invasion of the water-conducting channels in the wood by a fungus or bacterium entering from the soil, or a parasitic rot of the roots, especially the fine roots. Microscopic examination failed to detect the presence of any such parasites, and an attempt to isolate an organism from the necrotic bast was equally unsuccessful. As the disease is not dependent on the physical character of the soil, nor upon weather conditions, occurring on both light and heavy soils, and appearing during both rainy and dry weather frequently in scattered cases, the author believes it will prove to be infectious, like leaf-roll of potato, and apparently sereh of cane, which he points out, recent research in Java attributes to a bacterium. It resembles leaf-roll and sereh, in the disorganization of the sieve-tubes (which are filled with a gum of similar chemical reactions), depletion of the food reserves, and restriction of growth. The coffee disease, however, kills the trees outright, often very rapidly, whereas leaf-roll and sereh are not fatal. The author attempts to explain this difference by pointing out, that the conducting channels (sieve-tubes) of the elaborated food in a woody plant like coffee are confined to a more restricted zone, so that their disorganization would affect the nutrition of the water-absorbing roots more completely. The acute, rapidly fatal form of the disease seems to call for a more precise explanation. The fact that the finer roots are always found to be rotten and dead, when the tree wilts, suggests that root-rotting fungi may play a decisive part in the ultimate stage, at least. A set of experiments have been started with a view to determining if the disease is infectious.

CONTROL.

It is believed that the old trees, still unaffected, in plantations where disease has been active for many years, may be highly resistant. The author advises, therefore, that seed for new planting and replanting be taken from such trees. Budding and grafting trials are also being undertaken on stocks of other varieties. As the disease does not show up until the trees are at least four to five years of age, results must be awaited with patience.

S. F. A in

The Agricultural News.

THE COFFEE MARKET.

Messrs. T. H. Allan & Co., in their Report, dated 25th May gave the following interesting details of the statistical position ;—

MONTHLY STATISTICS TO APRIL 30TH.

	1921. Tons.	1920. Tons.	1919. Tons.
EAST INDIA—			
Landed	2,426	1,461	2,200
Delivered	1,346	945	412
Stock	2,120	1,659	1,930
ALL AFRICA			
Landed	1,516	1,920	904
Delivered	1,145	1,051	561
Stock	2,188	1,886	892
COFFEE OF ALL KINDS—			
Stock in U. K.	22,100	18,555	20,180
Total European Imports	113,280	63,055	111,590
Do. Deliveries	116.585	118,175	75,055
Do. Stock	110 820	108.885	66,705
World's Visible Supply	502,300	437,000	641,530

The increasing deliveries of Coffee have been a feature of this market, still prices have remained steady, and Home Trade qualities continue to meet with a fair demand. A later report states that offering in auction have been

	25th—31st May. Offered.	Sold.	Offered since 1st Jan.
East Indias	1,420	1.234	29.008
Nairobi	2,305	771	26,104
Uganda	485	114	14,526
Toro	181	100	
Costa Rica	3.046	2,566	74,756
Other Milds	1,526	876	40,376
Brazil	3,132	147	18.428½
Robusta	...	..	1,098
Tanganyika	...	...	4,110

The following prices are recorded :—

COFFEE IN AUCTION.

MYSORE.

Mark.		No. 1.	No. 2.	No. 3.	PB.	T.
Ubban Mockett	...	50·127/6	86·114/	25·91/6	24·126/6	20·77/6
Elliots	...	45·95/6	29·81/6	33·71/	7·90/	8·64/6
PH & CO. Santawerry	...	27·127/	22·110/6	3·88/	4·134/	3·77/

COORG.

Binny's Sidapur	...	56·96/6	35·84/	1·57/	10·88/6	10·63/6
Do. Wudderhully	...	40·97/	33·87/	3·60/	9·89/6	9·64/
Do. Purchie Kadu	...	32·98/	32·88/6	3·61/	8·88/6	6·64/
Do. Tooben Kollie	...	72·99/6	66·89/6	7·68/6	10·90/6	11·68/

ANAMALLAI.

EXTRA.						
Anaimaad	...	31·91/	21·80/6	3·57/	5. N.	17·62/6
Valparai, 27·100/6	...	34·95/6	39·88/	24·74/6	13·90/6	10·66/

TRAVANCORE.

Seetagundy	...	32·21/	21·79/	5·58/	5· N.	9·61/6

Locally, Messrs. Peirce Leslie and Co., report as follows regarding their auction sale :—

" Buyers were keen on parchment, and assortment sold at from Rs. 55 to Rs.59 per cwt. ex-bags ex-works, and one small lot fetched Rs 61/12, but no interest at all was displayed in Cherry or Tails, and none was sold. This was due to the majority of the dealers not attending the auction as they demanded 60 days time to pay for purchases, and when this was declined they formed themselves into a Union and stayed away. Cherry coffee is in demand, and it is hoped to hold another auction in a few weeks when the Union men will probably come and buy on usual terms.

It is not considered advisable to meet the dealers' request or 60 days time will become a permanency. The present 30 days allowed seem ample for the dealer and long enough for the owner to wait for his money."

PRODUCTION FOR QUALITY.

Certain countries in the tropics are noted for the quantity of their agricultural products, while others are renowned, not so much for the quantity, but rather for the quality of their products. This circumstance appears to be deserving of attention.

To take concrete examples, we may cite the Gold Coast, which is noted for the quantity of its cacao output, in contrast to Ecuador which, although it produces very large quantities, is chiefly famous for the quality of its product. Again, the Southern United States produce enormous quantities of cotton, but this is far inferior in quality to the fine Sea Island cotton of St. Vincent, although the output of this finer cotton is relatively infinitesimal. Another example is to be seen in the case of coffee. Brazil produces very large quantities of coffee compared with Jamaica, but the Blue Mountain Coffee of Jamaica is infinitely superior to that of Brazil. One can go on citing examples almost indefinitely. Why is it that San Blas is famous for its coconuts, Barbados for its syrup, and China for its tea? It is not because of the quantity of these products, but because of their quality.

We know in a general way what the explanation is, but only in a general way. Take, for instance, Gold Coast and Ecuador cacao. The reason for the lower quality of Gold Coast cacao is partly due to the fact that it is produced by small native growers; the fermentation is therefore generally primitive, and there is little uniformity, while 'country damage' is also frequent on account of transport difficulties. These facts, however, do not serve for a complete explanation. It is well known that Ecuador cacao is very poorly fermented and prepared, and it is also known that but little attention is given in this country to the cultivation of the plantations. The true explanation lies in the superior variety or breed of the Ecuador cacao, the successful growth of which depends upon subtle conditions of soil and climate. The exact nature of these conditions has not yet been investigated. Since high-grade cacao grows wild in the forests of Ecuador, and since the so-called cultivated trees are grown under conditions approaching those of the forest, it would be of the greatest interest if the natural conditions of environment were carefully studied and measured. In this way the plant's exact requirements might be brought to light, and so enable us to rectify environmental conditions in places which are not suited naturally for the cultivation of high grade cacao.

In should be mentioned here that the unsuitability of environment is generally manifested by the spread of pests and diseases. That is what happened many years ago when efforts were made to grow the high-grade but delicate criollo cacao in Trinidad and Grenada.

In the case of cotton, we also have an instance where the production of a high-grade article has been abandoned on account of the spread of a pest. This happened in the islands of Georgia and Carolina, to which the cotton boll weevil gained entrance. But quite apart from this circumstance, no other place in the world, so far as is known, can produce lint of such length, strength and fineness as St. Vincent, St. Kitts and Montserrat. Like the case of Ecuador cacao, the explanation lies in the existence of special conditions of soil and climate. But there are other factors as well. Being small islands, it has been possible to produce and maintain a pure strain of specially selected seed. This selection work is continually in progress. Again, by virtue of the same circumstance of insularity, the Government has been able to regulate the industry by legislation, and in other ways, all of which have tended to produce uniformity. In addition, these islands have an adequate and very skilled force of labour, which is essential in the production of cotton.

The conditions pertaining to the production of high-grade coffee are brought out in an article on another page of this issue. There it will be seen that altitude, in the tropics, is the essential factor; but soil conditions, proper preparation and adequate labour at the time to picking as also very important.

In the matter of quality, with regard to coco-nuts, we are very much in the dark. In tropical America the San Blas coco-nut of Panama has a very high reputation. These nuts are not large in size, but they are reported to contain a very high percentage of 'meat'. We have had the opportunity of examining some of these nuts, and the thickness of the endosperm was indeed striking in the specimens provided. Is this an hereditary feature of these nuts, or is it produced by conditions of environment? Possibly both. Actually we know very little about these important matters. Yet it is clearly desirable to grow coco nuts for quality, just as it is to grow other produce for quality, and in time this problem of the coco-nut will no doubt receive the attention it deserves.

Quality in respect of such products as sugar, is largely a matter of money. It is only a question of capital to produce good sugar. If capital is forthcoming, the machinery, the engineers and the chemists can all be secured. In this respect, sugar production is far less complex and empirical than the production of the other products referred to in this article.

There is, however, the aspect of syrup and muscovado making. In these, the individual skill of the planter and the sugar boilers is an important factor. And the reason why high-grade syrup can be produced in Barbados is largely because of the skill and long experience of the people.

The question now arises, as to what extent planters should aim at producing crops of high quality. In the first place we have seen that, in the present state of our knowledge. Nature and not man is the principal agent by whom quality is determined. Hence it is clear that the first essential is to secure land in those regions which nature has endowed with certain necessary features of environment. Such lands are limited, however, and, if they are not already occupied, generally possess certain economic features that present difficulties from the standpoint of development. As to whether steps should be taken to overcome these difficulties, or whether the easier road to mediocrity should be followed, must be left to the decision of those people immediately concerned.

There is one final consideration. The demand for very high-grade and costly produce is limited. This is especially so at the present time. But under normal conditions, high-grade produce always commands a *relatively* higher price than medium-grade produce, and, if production does not entail a proportionally higher expenditure, the superior article will usually bring in more profit than the medium one.—*The Agricultural News.*

INDIAN TEA ASSOCIATION.

ABSTRACT OF PROCEEDINGS OF A MEETING OF THE GENERAL COMMITTEE, HELD AT CALCUTTA, ON 7TH JUNE, 1921.

CORRESPONDENCE WITH THE INDIAN TEA ASSOCIATION, LONDON.—A letter, dated 12th May, from the Indian Tea Association, (London) which had been circulated to the Committee, was now before them for consideration. The principal subjects dealt with in the letter were the following:—

(*a*) INDIAN HOMEWARD BILL OF LADING.—In the proceedings of 12th and 26th April reference was made to a letter issued by the Agents of the Clan Line, Calcutta, forwarding a revised form of bill of lading for homeward cargo from Calcutta and Chittagong. As explained the Committee pointed out to the Line that, under the terms of the current agreement between them and shippers, any alterations in the form of bill of lading must be agreed on between the parties; and that the matter was being referred to London for discussion between the owners of the Line and the London Association.

The London Association now forwarded copies of letters on the subject exchanged between them and Messrs, Cayzer Irvine & Co., Ld. The latter stated that they had informed their Calcutta agents that alterations in the bill of lading must be agreed with tea shippers, and that the revised form had been returned to Calcutta with the deletion of one new clause in particular which Messrs. Cayzer Irvine & Co., Ld, agreed should not have been inserted. As the remaining alterations in the proposed new form had been accepted in other trades, both from India and from Australia, the hope was expressed that tea shippers would now accept them. The London Association mentioned that the matter would be further considered by them at their next meeting.

LABOUR DIFFICULTIES.—The Committee discussed, at considerable length, recent developments in connection with the labour position. They had, of course, as hitherto, been in the closest touch with the Branches and district Associations, and had been kept fully posted by these regarding the progress of matters. The position generally from the point of view of the Government of Assam was dealt with in the communique issued by that Government in the press of 7th June, which also contained the report by Sir Henry Wheeler, Member of the Executive Council of the Government of Bengal, on his visit to Chandpur to investigate the circumstances in connection with the coolies stranded there.

REGULATION OF SHIPMENTS FROM INDIA.—Some discussion took place with reference to two telegrams received from the Indian Tea Association (London). The first of these, dated 24th May, stated that in view of the easier position in London, the Committee of the Association there considered that June shipments might be increased to 25 million lbs. Copies of this telegram were sent to all members of the Association for information on 31st May.

The other telegram was in reply to the reference which it was arranged at the meeting of Committee on 26th April last to make to the London Association. As mentioned in the proceedings of the meeting, it was thought possible that the circumstances in London might lead to a certain amount of restriction of shipments, for, if sales were restricted in London, shippers would find there was nothing to be gained by rushing home their teas. But it was, the Committee considered, a necessary corollary of any arrangement for restricting sales that private sales during the period of such restriction should be barred. They accordingly suggested to the London Association that an endeavour should be made to have an arrangement concluded under which, during any period of restriction of auctions, private sales should be disallowed. The cable now received from London, dated 27th May, was in the following terms :—

Referring to your letter of 28th ultimo not sufficient unanimity here to adopt your proposal regarding private sales. Several large agencies will not bind themselves not to make sale of whole or part crops if satisfactory offers received. Understand sales of whole crops already made in Calcutta.

The Committee discussed the matter. They were not sure as to the position in London with regard to sales of new crop ; whether, that is to say, it was proposed to arrange that no new crop should be offered in public auction there until sales of the old crop had been completed, and whether a recommendation should be issued to shippers from Northern India to delay shipment of their new crop as much as possible. It was agreed to cable to the London Association for information on these points.

OCEAN FREIGHT AGREEMENT : TEA RATE FOR JUNE.—In a letter, dated 1st June, the Secretary, Bengal Chamber of Commerce, intimated that the rate of freight per ton for tea for June was £3·2·6. Copies of this letter were sent to members of the Association, and the information had also been cabled to the London Association and to the Ceylon Chamber of Commerce. In course of circulation to the Committee, a member pointed out that in the statement of the calculation of the tea rate the rice/wheat average rate was given as nil, whereas the manifest of one vessel, the " Benefactor," showed that nearly 300 tons of rice had been shipped to the United Kingdom. The rate for this shipment was 36*s.* 3*d.* nett, and if it had been taken into consideration the rate for tea would have been reduced by 3*s.* 9*d.* per ton.

It was now explained that this shipment of rice went to Liverpool, and that, under the terms of the tea agreement, shipments of rough cargo to Liverpool were not taken into account in the calculation of the tea rate unless the Tea Association so desired in writing. Some discussion also took place with reference to the rates quoted by the Liner's Conference for continental ports, which had recently been 3/- lower than the rates for the United Kingdom. The Committee were of opinion that any tendency in this direction called for a protest, and they decided to draw the attention of the London Association to the difference in rate in favour of the Continent whenever such difference amounted to 5/- or more.

CONDITION OF TEA PACKAGES.—This matter was referred to in the proceedings of last meeting. It was there stated that particulars had been received from the Calcutta Liner's Conference regarding the condition of tea packages reported by one of the Lines ; it was added that further particulars on the subject expected from the London Secretaries to the Conference were to be awaited. A letter, dated 26th May, had now been received from the Calcutta Conference giving certain further particulars furnished by another of the Lines of inferior packages discharged from four of their vessels. The information thus forwarded had been noted by the Committee, who directed that, in acknowledging receipt to the Conference, the suggestion should be made that the steamer companies concerned should forward the relative particulars to the individual shippers for consideration.

NOTES AND NEWS

Secession.

The Planters' Association of Malaya apparently has its troubles in common with the rest of the world. That pithy periodical "The Planter," in a leaderette,says :—

"The decision of the Kedah, Lower Perak and Taiping District Planters' Associations to secede from the P. A. M. is to be regretted. The rubber industry is undergoing a severe trial, from which it will emerge only with difficulty, and those on whom the task has devolved of finding a solution of the present difficulties are not helped by the knowledge of schism and strife within what little organisation the industry possesses. Few will maintain that the P. A. M., as at present constituted, is an ideal and thoroughly representative body; but it is the only body recognised by Government as representing the rubber and cocoanut industries in Malaya, and in spite of its constitutional disabilities it has done much good work in the past, and has been the means of redressing many planting grievances. Lack of co-operation and petty parochialism have brought the industry to the present sorry pass, and it behoves all who are interested in these important industries to pull together, and by patient and sympathetic discussion to reorganise the parent body so that its efficiency may be increased."

Rubber Exports from Federated Malay States.

It is reported by official cablegram from Kuala Lumpur that 7,408 tons of rubber were exported from the Federated Malay States in March. This compares with 6,091 tons in February, and 9,524 tons in the corresponding month of last year. The total export for the first quarter of the present year was 20,584 tons, as against 30,424 tons in the corresponding period last year, and 28,651 tons in 1919.

Following are the comparative statistics :—

	1919.	1920.	1921.
	Tons.	Tons.	Tons.
January ..	7,163	11,119	7,085
February ...	10,809	9,781	6,091
March ...	10,679	9,524	7,408
Total ...	28,651	30,424	20,584

The Rubber Growers' Association.

The Adjudicators of the Prize Competition for new and extended uses of rubber, have advised the Association that, to their great regret, it will be impossible for them to make their award in time for the forthcoming Rubber Exhibition. The reason for their inability to make the award in time is that certain suggestions put forward have necessitated a good deal of experimental work and tests, in order to prove or disprove, as the case may be, the practicability of such suggestions.

The numerous entries, totalling nearly 2,000, have necessitated the holding of many meetings, and long and careful consideration by the Adjudicators. Certain experiments have been carried out already, on the instructions of the Adjudicators, to test new processes and compounds suggested by the applicants, but in some cases these tests have not resulted in producing what is claimed, and the necessity may possibly arise for further explanations from and possibly personal interviews with a view (? few) of the Competitors.

Overheard at a P. A. Meeting.

The Chairman :—" Well, Gentlemen, I am very glad to be able to announce that we have got a Mycologist in the district at last."

The latest Creeper.

"Mpmh ! Why is he making such a song about it. Mr.——will not be the only woman-hater here."

American Statistics,

In our leader to-day we draw attention to the reports in the American press regarding stocks of rubber in consumers' hands. Under the heading "American Rubber Statistics," " The India Rubber Journal " to hand by the mail publishes the figures issued by the Rubber Association of America relating to the amount of Crude Rubber consumed in the manufacture of Rubber Products, and total sales value of shipments of manufactured rubber products from America. Such a compilation of figures ought really to be of the greatest use, yet we find our contemporary obliged to confess their inability to assess the exact degree of reliance which should be placed on these figures, and we feel confirmed in our estimate of the value of figures supplied by a "trade" for the use of " producers."

An Extraordinary Discrepancy.

Our comtemporary goes on to say :—

In the list of the undertakings contributing statistics we fail to observe any important omission ; nevertheless we have positive grounds for believing the figures, both for rubber consumption and sales of manufactured products, to be understated.

Thus, the United States Rubber Co., the B. F. Goodrich Co., the Goodyear Co., the Firestone Co., and the Miller Rubber Co., are all amongst those who responded to the questionnaire, and furnished particulars of their sales of manufactured products. These five companies alone had a combined sales turnover, according to their annual reports to the shareholders, of $761,022,769, or $162,303,117 *more* than the Rubber Association of America reports for 143 undertakings ! Now, unless the part is greater than the whole—an hypothesis which we have hitherto regarded as unsustainable—there is some extraordinary discrepancy here, into which the Association should look. We are aware, of course, that the sales totals of the above five concerns include in some cases goods sold by Canadian branch factories, but even after providing for the elimination of this item there is a great deal left to be explained. As manufacturers do not supply their shareholders with details of their consumption of raw rubber, it is obviously impossible to apply the same method to the criticism of the Association's returns of rubber consumption, but, a doubt having been cast on the one side of the statistics, there is a presumption of error on the other also. The figures, at all events, are not regarded as final in Mincing Lane, where a disposition now exists to put the United States consumption of rubber in 1920 at round about 190,000 tons, or 25,000 tons more. It may be of interest to mention that the total import of raw rubber into the States in the year 1920, according to figures also furnished by the Rubber Association of America, was 221,080 tons, against 231,511 tons in the previous year.

Inaction.

No progress can yet be reported with regard to rubber crop restriction, nor has the R. G. A.'s selling scheme yet been made public. The inaction is apparently due to the fear that sufficient support would not be forthcoming. We submit that this has to be proved. To argue non-success, before a scheme has been prepared and submitted to the industry at large, is mere faint-heartedness. In this connection it is no doubt a great pity that complete information is not available with regard to planted acreage in native hands in Malaya, and throughout the East. We speak more particularly of small areas of 100 acres and under in native proprietorships. Such estates are the only ones which need be taken as definitely excluded from any scheme, and it would, therefore, be of great assistance to know what proportion this acreage bears to that owned by the organised Industry. Some estimates of this acreage which are in circulation are obviously much exaggerated, but until the real facts are ascertained it will be impossible to scotch them.—(*India Rubber Journal.*)

Ceylon Tea.

Figures of Ceylon Tea exported by rail *via* Tallaimannar to the following destinations in South India :—

	lbs.
Karur	50
Palghat	500
Cannanore	2,600
Trichinopoly	504
Badagara	3,040
Total	6,694

These figures are taken from the " Ceylon Chamber of Commerce " Weekly Roport, dated 30th May, 1921.

Inter-District Sports.

The Mundakayam Team having expressed their inability to play their match against the Nilgiris in June, the latter receive a walk over and meet the High Range in the finals at Bangalore, in Annual Meeting week.

At the Executive Committee Meeting this week designs were shown of the cup decided upon. It is a very handsome trophy, and its manufacture is in the capable hands of Messrs Barton & Sons, Bangalore. Miniatures of the cup will be presented to the individual members of the winning team.

FOR SALE.

DRUGS :—Our stock is reliable, fresh and varied. We have the stuff you want. State your wants and ask our prices.

COLLINGWOOD & CO.,
Mount Road,
Madras.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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NEW USES FOR RUBBER.

We have two articles in this week's issue relating to Rubber Roads, one from a home paper and one from the "Malay Mail." Both, it will be seen, are optimistic regarding this form of roadway, and certainly from an Engineering point of view it seems incredible that in these days of advanced scientific knowledge our engineers should be baulked by the one question of anchoring the rubber to its foundation. Unfortunately these matters require years of research and experiment, so that it is unlikely that the rubber roadway will solve the problem of the present acute crisis in the plantation industry. It may, and most probably will, represent the means of stabilising for some years to come the output of rubber once the engineering difficulties have been overcome, and provided always that it does not lead to increased opening of new areas. From this point of view nothing could be worse for the industry than a boom, and we most fervently hope that this question of roadways, and indeed the whole gamut of ideas concerning new uses for rubber will not amount to more than absorbing present stocks, permitting full working of our present developed and opened areas, and in future allowing of steady expansion on quite normal lines.

From the article in the "Malay Mail" it would appear that the engineering difficulty is not the only one likely to be met with when the question of rubber roadways in the East is to be considered, and we have to damp our ardour for roadways with the possibility that the rubber will not stand the actinic rays of our tropical sun. We noticed some time back that the Singapore Municipality were getting a move on with rubber roadways, and at the time suggested to the Madras Government that similar experiments might be tried in Madras. Perhaps our Local Government would be well advised to wait and see the results of the Singapore and Kuala Lumpur efforts before paving the approaches to Government House, or any other of the Madras roads, with South Indian Rubber, but this need not hinder experimentation with vulcanising processes since, as we have so often insisted, what is suitable for the Straits may not be suitable for Madras, and, if no move is made now, we are likely to get left when later on we look with envious eyes towards the rubber-paved cities further east. If the experiments now in progress in Singapore and Kuala Lumpur are successful, and there is no reason to suppose they will not be, a demand for rubber paving blocks will arise in India, and can only be met by purchase from home or from Singapore. This would make the cost prohibitive, for a reason we have often enough mentioned here, the fixed dollar in the F.M.S., and the consequent high cost of production of the raw material compared with Southern India. In the "Malay Mail" mention is made of £5 per square yard, cost of rubber blocks at home, compared with $ 30 per square yard in Malaya. If we have to pay such a price as that in a few short years to meet an insistent demand for this form of paving, plus transport to India and the charges incidental to such imports, the Government may quite rightly be stigmatized as penny wise and pound foolish.

So the whole question turns on vulcanization processes in this country. The point was brought up, it will be remembered, at the last Annual Meeting of the U. P. A. S. I., but we think a mistake was made then in asking Government help to establish a factory. What would be more to the point would be to ask Government to start research work at once in vulcanizing processes, so that once we are assured that it can be done, private enterprise may be left to raise the required capital. The uncertainty of a successful issue from the very beginning makes it difficult to raise capital with the rubber plantation industry in its present parlous state, but it is the privilege of Governments to conduct research work—as they have done in South India in other directions—so that the capitalists may decide whether, as a result of that research, they are prepared to put up the necessary capital. We put it to the Rubber Member on the Executive Committee that it is for him to re-open the matter of a rubber factory in South India, not on the lines of requiring financial help from Government for such a factory, but on the lines indicated, *viz*, that Government be asked to institute research on the vulcanizing of rubber in S. India, particularly by the Peachey cold process, with a view to assisting the manufacture of rubber goods in India with Indian grown rubber.

KANAN DEVAN PLANTERS' ASSOCIATION.

PROCEEDINGS OF THE ANNUAL GENERAL MEETING OF THE ABOVE ASSOCIATION, HELD IN THE HIGH RANGE CLUB, MUNNAR, ON SATURDAY THE 11TH INSTANT AT 3-30 P. M.

PRESENT—Messrs. H. L. Pinches (in the Chair), A. H. Dixson, J. W. Tolson, B. John, C. Rowson, G. A. Holden, A. W. John, A. B. Byers, H. A. Ragg, W. A. Lee, P. G. Campbell, R. D. Armstrong, H. Clerk, H. J. Watson, A. Yates, W. O. Milne, J. S. B. Wallace and E. H. Francis (Honorary Secretary), and by proxy Messrs. A. J. Wright and J. W. Dixson.

VISITORS.—Messrs R. B. Cullen and A. J. E. Steven.

Notice calling the meeting having been read the Chairman moved that the minutes of the Bi-Annual General Meeting as published in the "Planters' Chronicle" of March 12th last be taken as read and confirmed. This was agreed to unanimously.

The following Agenda was laid on the table :—

(1) Chairman's Remarks

(2) Accounts and Honorary Secretary's Report.

(3) Incorporation

(4) Sri Mulam Popular Assembly } ... Delegate's Report,
T. C. P. A. Meeting

(5) Motor Traffic Sub-Committee's Report.

(6) S. I. Planters' Benevolent Fund.

(7) Postal Service

(8) Lady Ampthill Nursing Institute.

(9) Election of Office-Bearers.

  (*a*) U. P. A. S. I. Delegates (2).
  (*b*) Members of U. P. A. S. I. General Committee (2).
  (*c*) K. D. P. A. Chairman (1), Hony: Secretary (1), Committee (5).

(1) CHAIRMAN'S REMARKS.

"Gentlemen,—So far as our Association's activities are concerned, I think Mr. Francis has covered all the ground in his report which I shall shortly have the pleasure of calling upon him to read to you, so I will confine my few remarks to general topics concerning our industry.

"This district is chiefly interested in tea, of which we produce between 10 and 11 million pounds, and the outstanding feature of the year under review has been the depression in the tea trade. The serious slump in the prices realised for tea generally, but more especially teas of poor quality, of which I am glad to say we produce very little – is generally attributed to over-production, but this is only true in a measure. That is to say more tea is being, or has been, produced than can, under the present dislocated conditions of trade, be profitably sold, but—and I think this is an important point to remember—the production of tea has not yet overtaken the consuming powers of the world, and if we could get our tea to all those who want it, and are willing to pay for it, we should hear no word of over-production. In fact it is trade dislocation, especially in Russia and on the Continent generally, that is affecting our industry, not over-production pure and simple.

" Such being the case I think restriction of output, of which we have heard so much for the last year, can be pushed too far. There is no doubt a lot of tea was put on the market both by India and Ceylon shortly before the slump set in that should never have been turned out by any factory, and restriction of output by the elimination of such teas and the avoidance of anything approaching coarse plucking is sound, but any restriction beyond this will, I think, very possibly mean that the extra price that we get in consequence will be more than eaten up by the extra cost of production whilst fine plucking is bound sooner or later to upset the labour forces on tea estates, if it has not already contributed to doing so.

"The real remedy for the present situation is the re-establishment of international credit, and it is encouraging to see that a real effort is now being made to get this established. Once this is accomplished I am convinced we shall see a quick recovery of our industry.

"Another line of action to improve the present situation which I consider sounder than the excessive restriction of output is the exploiting of new markets. Efforts in this direction are chiefly confined to the work done by the Indian Tea Cess Committee, of which I have the honour to be the member for South India, and there is no doubt that, under the Cess Commissioner, Mr. Newby's able direction much good work has been done during the last few years in the popularising of the drinking of tea in India. As you are aware the cess has been increased from ¼ pie per lb. to 4 annas per 100 lbs. from the first April last, and practically the whole of the money so collected will be spent in promoting the consumption of tea in India and other countries. Under the old rate the cess only brought in sufficient funds for work in India, but it is proposed to start work in France and Belgium next season.

" Another subject that looms large on the planting horizon is labour. In spite of the general increase in rates most, if not all tea districts in South India have been short of labour during the last year. We have, in the past, been able to get all the labour we required from a comparatively small area, but the extension of planting industry in South India during the past 10 years or so has led to these districts being over-recruited, and there is little doubt we shall have to go further afield for a large proportion of our labour in the future. Experience has shown us that the over-working of a limited area leads to bad debts and disappointment.

" REGARDING RAILWAYS.—A good deal has been written and said during the last year about feeder lines for planting districts, but nothing definite has so far materialised. Regarding our own district, I am very glad to hear that the Travancore Government are interesting themselves in the matter, and several surveys including a line from Neriamangalam to Munnar are in contemplation. There is no doubt that this is the true outlet from this district to the West, and we sincerely hope that the survey will be shortly put in hand.

"There is no doubt that the High Range, by its size and output of produce, has qualified for railway communication with a port of shipment, and the same could be said of other planting districts in South India which, like us, still have to rely on the primitive slow and expensive bullock cart to remove their produce and bring in their supplies. The Madras Government have, however, almost consistently neglected their obligations to the planting districts in this respect in the past, and we trust that the Travancore Government will set them a good example. For the last 20 years or more hopes have been held out to us from time to time of a branch line from Madura or Kodaikanal Road to Bodinayakanur, but our transport is still carried on by bullock carts over this 60 miles of road, and I should not be surprised if this line is stlil at the same stage of contemplation it has been in for the last 20 years long after we have an up-to-date line of communication with the West Coast. If so, we shall then be in a better position to appreciate the humour of the situation than we are just now.

"We had the pleasure of a visit from the Dewan of Travancore last month, he was able to see for himself the developments that have been carried out in the district, and the difficulties of communication under which we laboured.

"I will now ask our Honorary Secretary to read his Report."

(2) HONORARY SECRETARY'S REPORT.

"Mr. Chairman and Gentlemen,—I beg to place before you my report on the work of the Association during the past year.

"MEMBERSHIP.—There are 33 members on the Association's Register, and 2 Honorary Members.

"All cess and subscriptions for the season were paid in full.

"ACREAGE.—397 acres of tea were opened during the year, 38 acres of tea, 25 acres of rubber, and 13·55 acres of cardamoms were abandoned.

"The acreage at the close of the season, therefore, was as follows:—

	Acres.
Tea	22,266
Rubber	794
Coffee	798
Minor Products	1,178
Total	25,036

being an increase of 320·56 acres.

"In accordance with a request from the Secretary, U. P. A. S. I. all acreages will be calculated in future to the nearest acre.

"YIELD.—During the 12 months under review, 10,064,674 lbs. of made tea were harvested against 11,242,199 lbs. for the 12 preceding months, a decrease of approximately 10½%. There is no doubt that this is partly due to the unfavourable weather conditions during the spring, but mostly to the finer plucking now in force throughout the district.

" MEETINGS.—The Bi-Annual General Meeting, 9 Committee Meetings and 4 Meetings of the Motor Sub-Committee have been held during my term of office. With the exception of the first mentioned, all were well attended.

" Delegates were present at the 27th Meeting of the U. P. A. S. I., the Sri Mulam Popular Assembly, and the Annual General Meeting of the Travancore Combined Planters' Association. Our hearty thanks are due to the gentlemen who represented our interests so well at these conferences.

" MEDICAL GRANTS.—The Medical Grants to the three dispensaries have been regularly paid by His Highness' Government, and we are very grateful for this continued concession.

" L. A. N. INSTITUTE.—You will remember that a large increase in subscription demanded by this Institute was considered at the last Annual Meeting, together with a counter proposal put forward by the last Secretary. I have the pleasure of informing you that Mr. Strachan's compromise was eventually adopted by the Institute.

" From correspondence lately to hand, however, I learn that a further increase is contemplated, and the matter has been placed on the Agenda paper for discussion.

"POSTAL SERVICE.—The delivery of the mails is still most irregular in spite of the Circle Superintendent's assurance of an improvement, and I consider that the matter should be re-opened.

" WAR MEMORIAL.—Unfortunately no further steps can be taken in this matter until advice is received from Mr. Bridgman as to the cost of the Bronze Plates.

" Mr. Bridgman promised to obtain quotations for the plates in England, and we are expecting to receive the required information at any moment. Thereafter the plan, final estimate, and subscription list will be circulated, and the erection commenced.

" S. I. P. B. FUND.—I have the pleasure of reporting that 31 members have subscribed Rs. 310 this year, against a subscription made by 18 members last year of Rs. 165. There are still subscriptions amounting to Rs. 40 to be collected from members on furlough.

" In response to my circular on the subject, only one member refused to assist this deserving fund.

"P. A. RECORDS.—All the correspondence and records dating back to 1884 have been sorted and are now filed under one system.

"ACCOUNTS.—Copies of these are before you, and have been kindly audited by Mr. Brown. The balance at the credit of this Association remains practically the same as at the end of the previous season.

"Expenditure has increased, however, under the following headings:—

" L. A. N. Institute by	Rs. 675
" U. P. A. S. I. Delegates' expenses by ...	Rs. 100
" Purchase of Seal, Typewriter and Cyclostyle...	Rs. 340/9

"The last mentioned expenditure is non-recurrent, and I consider the present cess ample for our usual requirements.

"In conclusion, gentlemen, I beg to tender my very best thanks, both to our Chairman and the Committee for their unfailing help and kindly advice throughout the season. I now place my resignation in your hands."

The Chairman then proposed that the accounts and balance sheet now before the meeting be approved, and the Honorary Secretary's report adopted. Carried unanimously.

Mr. Pinches proposed a hearty vote of thanks to the Honorary Secretary, and to the Auditor, Mr. Robert Brown, for their work during the past season. This was carried unanimously, and the Honorary Secretary thanked the meeting.

(3). INCORPORATION.—The Honorary Secretary explained the reason for the delay in this matter, and the following resolution was put from the chair:—

> " That Messrs. Lee, Milne, Wallace, Dixson, Yates, Francis and Pinches be elected personal members to act as the promoters of the Incorporated Association." Carried unanimously.

(4) SRI MULAM POPULAR ASSEMBLY AND T. C. P. ASSOCIATION DELEGATE'S REPORT.—Mr. J. S. B. Wallace read his report which was listened to with interest, and a vote of thanks proposed from the chair was carried unanimously.

(5) MOTOR TRAFFIC SUB-COMMITTEE'S REPORT.—The Honorary Secretary read his report on the working of the Committee during the last six months. The Chairman, in moving its adoption, said that it was evident from the report that much good work had been done by the Committee, and it was resolved that the Committee be re-appointed.

(6) S. I. PLANTERS' BENEVOLENT FUND.—The Chairman pointed out that, in order to come into line with Rule XI of the Fund, it was necessary to cancel the resolution passed at the Bi-Annual General Meeting, 1920, whereby the Honorary Secretary was instructed to collect and forward the yearly subscriptions. The following resolution was thereafter put from the chair, and carried:—

"That, in future the yearly subscriptions to the S. I. P. B. Fund be collected by the Secretary of the U. P. A. S. I".

(7) POSTAL SERVICE.—Mr. A. W. John moved the following resolution:—

"That the attention of the Postmaster-General be drawn to the fact that His Majesty's mails travel at an average rate of 2¾ miles per hour, and frequently less, over the journey of 84 miles between Kodaikanal Road and Munnar, although for 60 miles of the distance the road is suitable for Motor Traffic, three miles are covered by an aerial Rope-way, and 21 by steam tramway; and that he be requested to take the necessary steps to expedite delivery."

This was seconded by Mr. Yates, and carried unanimously.

(8) LADY AMPTHILL NURSING INSTITUTE.—Read L. A. N. Institute's letter, dated 3rd May, wherein the Secretary of the Institute advises the probable increase in subscription and fees.

The Honorary Secretary moved the following resolution:—

"That, should the L. A. N. I. again raise their rate of subscription, the renewal of this Association's membership be left to the Committee's discretion."

This was seconded by Mr. Wallace, and carried unanimously.

(9). ELECTION OF OFFICE-BEARERS.—The following members were elected:—

Chairman	Mr. H. L. Pinches.
Honorary Secretary	Mr. E. H. Francis.
Committee	Messrs. Wallace, Yates, Lee, Milne, and A. H. Dixson.
U. P. A. S. I. General Committee Members ...	Messrs. Pinches and Hawkins.
U. P. A. S. I. General Meeting Delegates ...	Messrs. Pinches and Hawkins.

A vote of thanks to the Chair terminated the proceedings.

(Signed) E. H. FRANCIS,
Honorary Secretary.

(Signed) H. L. PINCHES,
Chairman.

THE SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT NO. 5.

1. Mr. Rudolph D. Anstead, M. A., returned to head-quarters on 19th June to attend a meeting of the Executive Committee and discuss with them the budget of the Rubber Mycologist. Mr. Anstead has just completed a round of visits to Rubber Estates in Malabar. He will be at head-quarters till the end of the month, when he will pay a visit of inspection to the Rubber Experiment Station at Tenmalai. Any planters in South Travancore who may wish to meet him on that tour should communicate with him at once.

2. THE RUBBER MYCOLOGIST.—Mr. H. Ashplant is at present at the Agricultural College at Coimbatore, and will be there until the end of the month. Now that he has been appointed Rubber Mycologist, all correspondence and enquiries relating to the *diseases* of *rubber* should be sent to him direct and addressed (for the present).

H. ASHPLANT, ESQ.,
The Rubber Mycologist,
The Agricultural College,
Coimbatore, Lawley Road P. O.

Correspondence and enquiries relating to the *cultivation and manuring* of rubber should still be sent to Mr. Anstead. It should also be understood that Mr. Ashplant will deal with *the diseases of rubber only.* Correspondence and enquiries about the diseases of coffee and tea should still be sent to Mr. Anstead.

Planters are particularly requested to note these arrangements. as much time and trouble is saved if correspondence is directed to the right officer in the first place, and long delays to the planter corresponding are also avoided. Due notice will be given of Mr. Ashplant's final transference to his head-quarters at Mundakayam,

3. USES OF RUBBER.—Now-a-days the cry is for more uses for rubber. On 17th May there died, in the person of the Earl of Shrewsbury and Talbot, a pioneer in uses for rubber; he introduced rubber tyres for hansom cabs. There must be many planters of the older generation who remember calling for an "S & T" hansom on their visits to London, and the gloomy prophesies about this new type of tyre, how the rubber would perish in a week or two, how it would slip on wet road surfaces and cause accidents, and so on. What should we do to-day without the rubber tyre? Rubber planters may take off their hats to the long-sighted Earl who has gone to join his fathers.

RUDOLPH. D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

23—VI—21

[Note by Editor—P. C.] The Editor regrets the delay in publishing the above which should have gone into last week's issue, but was overlooked.

REPORT No. 6.

1. Mr. Anstead, the Deputy Director of Agriculture, Planting Districts, will pay a visit of inspection to the Rubber Experiment Station, Tenmalai, from 5th to 8th July, leaving Coimbatore on 3rd July. From Tenmalai, he will visit Florence Estate, and reach Quilon on or about the 12th, returning to head-quarters about 15th July.

2. DAIRYING.—Bulletin No. 79 of the Madras Department of Agriculture deals with " Some aspects of dairying at the Agricultural College, Coimbatore." The Bulletin deals first with the dairy herd at the College Farm, with their yield of milk and the method adopted for feeding the cows and rearing the calves, and then goes on to describe in detail the actual dairy processes, the creamery and the making of butter. The business aspect of dairying in Madras is discussed, and a series of appendices give a dissertation upon the daily variation in the composition of milk, a description of the dairy industry round Coimbatore, and the results of some preliminary experiments carried out at the farm on the influence of different fodders on the quantity and quality of milk; also a note on the economics of the ghee trade. The Bulletin is well illustrated, and may prove of interest to Planters who do a certain amount of amateur dairying on the estates. It can be obtained from the usual booksellers, and the price is one rupee.

3. CARE OF CATTLE MANURE.—We have often pointed out the necessity for protecting sheds and pits used for the collection of cattle manure, and the making of composts from the rain. The " Journal of the Ministry of Agriculture," (England) recently gave a practical example of the loss caused to farm yard manure by exposure to rain. Two heaps were made on a farm as nearly equal as possible. One was sheltered under a shed, and the other left in the open. When the time came for application to the land, approximately equal weights from the two heaps were applied to equal areas of land, *viz.*, 18 tons per acre. The crop grown was potatoes, and the results were :—

		Tons.	Cwts.
Covered Manure	...	9	14½
Not Covered	...	7	14¾

It would appear, therefore, that sheltering the heap caused a distinct improvement in value, and led to an increase of practically 2 tons of crop. It is probable that the benefits were even greater than appear, as the sheltered heap would be likely to weigh more than the unsheltered one in the end, owing to less loss through the washing of the rain.

RUDOLPH. D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

27—VI—21.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore,
29th June, 1921.

SECRETARY'S REPORT No. 24.

1. ANNUAL MEETING.—Mr. J. A. Richardson, M. L. C. has given notice that the following resolution will be proposed at the Annual Meeting.—

> "With reference to Article 7 in the Articles of Association, I beg to propose that, instead of the dates of 30th day of June, 30th day of September, 31st day of December, and 31st day of March, the following be substituted :—1st April, 1st July, 1st October, and 1st January."

The notice of this proposal has been forwarded to all Members.

2. MYSORE CHAMBER OF COMMERCE.—Mr. Fletcher Norton has kindly accepted the Executive Committee's invitation to him to represent the U. P. A. S. I. on the Managing Committee of the Mysore Chamber of Commerce in place of Mr. W. St. Clair Johnson, resigned.

3. COLOMBO HOTELS.—In reply to a letter sent to the Grand Oriental Hotel, Colombo, with reference to reduced rates for S. I. Planters, the Secretary of the G. O. H. has replied as follows :—

"The charge made for S. I. Planters in this hotel is at present Rs.10/50 per day inclusive. To meet your friends as much as possible we will agree to allow them the same rates as Ceylon Planters, which is Rs. 10 per day, inclusive. We trust you will see your way to make this known, and your Planting friends will patronise this hotel".

4. RAILWAY CHARGES ON GOODS.—With reference to Item 1 of Report No. 22 notifying that the resolution of the Nilgiri-Planters' Association had been forwarded to the Railway Board, the Secretary of the Railway Board has replied as follows :—

"I am directed to say that the Railway Board regret that your request for exemption of Planting Goods from the surcharge, or the grant of some concession on the railage of packing materials cannot be agreed to."

In this connection the Traffic Manager of the South Indian Railway has replied as follows :—

> "I regret that, owing to the increased cost of transportation, it is not possible to reduce the rates for carriage of Plantation Goods at the present time."

5. BUYING AGENCY.—The Standing Committee appointed to control this Agency have decided to start it at once. Having received a guarantee from one of its members that if the minimum number of members agreed upon to start the Agency is not reached, he will guarantee subscription up to the minimum amount required. Applications for membership are still coming in, though slowly. Members' tickets are being sent out to them this week, and all the firms concerned have been notified that the Agency will commence work as from the beginning of July.

(Signed) C. H. BROCK,
Acting Secretary.

CINCHONA IN INDIA, 1919-20.

The vital need of possessing within the Empire essential raw materials, such as quinine, was strikingly brought home to us during the war. In 1914, Germany, one of the most important manufacturing and distributing countries, had full stocks in hand with facilities for securing (during the early stages of the war) enough of the raw product to meet the wants of herself and her partner-in-arms. On the other hand, the supplies of the Allies were none too plentiful, and from the first they were dependent on the goodwill of Holland, which had, and still has, the virtual monopoly in her Java cinchona plantations. The Dutch, however, needed coal. machinery, and rice from Burma, so the result was a collective bargaining by the Allies, and the signing of an agreement for the supply and distribution of quinine by the Dutch Quinine Combine and the Association of Quinine Manufacturers in Allied countries. This agreement was faithfully kept—although at some pecuniary sacrifice to the Dutch—until the end of the war. After the Armistice the short supply of quinine led to hectic speculation by holders in second and third hands, and Government control became impossible. After decontrol prices became more stable, and at the present time the British Quinine Corporation, working in conjunction with the Dutch Combine, practically controls the British quinine market. Although prices have declined as a result of decontrol, the production of bark and quinine as a lucrative commercial proposition is apparently more firmly established than ever before. There is, therefore, a growing interest in cinchona cultivation in America, Japan, and within the British Empire.

An important scheme for developing the production of quinine in India was initiated during the past year, of which an account is given in the report on the Government Cinchona Plantations and Factory in Bengal for 1919-20, published in the "Calcutta Gazette" of December 8, 1920. According to this report it is probable that Burma will in time become an important source of the drug for India or the Empire. Owing to the strain of the war period, cinchona crops in Bengal have been much reduced. In 1919-20 the yield was 513,043 lb., and a still smaller harvest is anticipated for 1920-21: but this is all to the good of the plantations. The total area under cinchona is 3,080 acres, of which 2,319 acres is comparatively young. There are approximately 3,610,000 cinchona trees on Munsong estate and 1,480,000 on Mungpoo, making a total of 5,090,000. During the year under review, 149,835 lb. of Mungpoo bark and 334,410 lb. of Munsong bark were worked up, besides 514,540 lb. of bark obtained from Java for the Government of India. These showed on analysis a total of 20,588 lb. quinine sulphate of the Bengal grown bark, and 31,571 lb. on the imported bark. The products actually obtained were 47,724·25 lb. of quinine sulphate, 1,022 lb. of hydrochloride (equivalent to 1,160 lb. of sulphate), and 15,166 lb. of cinchona febrifuge (containing quinine equivalent to 2.226 lb. of sulphate), making in all an average yield of 98 per cent. on analytical results. The total cost of the total harvest was Rs. 97,497, but the actual market value was Rs. 2,74,670, and it is pointed out that the purchase of the same quantity of bark in the market would have cost the Government Rs. 1,77,174 (*plus* freightage and carriage charges) more than it actually did. ("Journal of the Society of Chemcal Industry," *40*·7.)

COFFEE UNDER SHADE.

BY "PLANTER."

Coffee is so universally grown under shade in Southern India now-a-days that to the young planter it must appear to have been always so, and yet it is within the memory of many planters now living that coffee, in every district except Mysore, was grown completely in the open; and, as has been pointed out in a former article, Mr. Donald Stewart, who earned the title of the "Coffee King" owing to the large number of properties he owned in Coorg, was particularly opposed to it. He, in common with many other planters who showed the greatest unwillingness to recognise the advantages of shade and regarded the idea of taking instruction from Indian planters, whose gardens were always under shade with the utmost contempt, might have been guided by the fact that the plants, as is pointed out by the planting author, Hull, appear to affect shade universally in a state of nature, never being found growing wild except under the protection of its parent trees or in the depths of the forest, although the seeds are commonly deposited by wild animals and birds in open land. These planters followed their misguided course till they experienced a rude awakening. The conditions obtaining on unshaded estates, especially in districts subjected to prolonged periods of drought, particularly encouraged the multiplication of borer to an unlimited extent, and it is related of one place in particular, the property of Mr. D. Stewart, that after giving a phenomenal crop of 125 tons off 250 acres in its fourth or fifth year, practically every tree in it was riddled with borer, thus necessitating its being completely replanted. Fortunately, the large profit produced by the place facilitated this being done; but in cases where the capital was not forthcoming, it led to the inevitable abandonment of places; and thus the large number of abandoned properties in the comparatively early days of coffee planting is to be accounted for.

The advantage of growing coffee under shade may be summed up (as put by an old writer) as diminished exhaustion, and consequently increased longevity of the plant, reduced cost of cultivation, a conservation of the nutritious properties of the soil, and an actual increase of these properties by the continuous fall of decaying leaves adding organic matter to it. As these have originally been formed to a considerable extent from constituents furnished by the sub-soil (provided the shade tree be a sub-soil feeder) there is a positive gain of matter to the surface which the roots of the coffee would otherwise never have been able to come within reach of. In addition, as is also pointed out, the value of estates growing large quantities of useful timber is being permanently increased, it being clear that a time must arrive when, owing to the constant progress of forest clearing, timber, whether for fuel, building purposes, or cabinet-making, will become considerably more scarce and valuable than at present. Against these advantages, the sole draw-back of shade for coffee is a diminished yield. The exact falling off will depend on the density of the shade and the heat of the climate. While, however, coffee grown in the open would crop more largely, the trees will the sooner be "pumped out," the coffee under shade will discover no signs of exhaustion, but be ready to go on bearing a crop of 3 or 4 cwts. per acre every year indefinitely. This is about the yield of old shaded estates in Mysore and Coorg at present; but it pays.

It is half a century since the importance of shade for coffee was recognised in Coorg, but the practice in favour there is to make a complete clearance of all forest trees and grow the shade with the coffee, planting the former at the same time as the latter, it being claimed that under this method the most suitable trees can be selected for shading the coffee. But as the land is subjected to a severe burn, which tends to the destruction of much organic matter and the latter is not added to till the shade trees grow up sufficiently, whereas if forest trees were left to shade the coffee it would be added to from the beginning, the practice is not to be commended. Certain jungle trees prove detrimental to the growth of coffee. These might be eliminated at once by cutting them down and stripping the bark off the stumps and replacing them by artificial shade. If it is desired to eventually eliminate all the old forest trees, this can be done by planting out artificial shade under the forest shade, and, after the former has made sufficient growth, to gradually " ring " the forest trees by cutting a deep groove round the foot of their stems. Some damage results to the coffee when the trees fall, but this is soon repaired by stumping the trees and growing up suckers, which make bonny bushes within two seasons.

It was not till 1875 that shade for coffee was introduced into the Wynaad District. A fair correspondent writing to the " Madras Mail" on the 5th of August in that year, says that the importance of shade for coffee had begun to force itself on the attention of planters sometime before then, and it was expected to effect wonders. There were to be no more weeds, no borer, no leaf disease—a sort of a planter's paradise in fact. Though all these benefits have not been realised, yet " there can be no question," as a writer in 1906 in the same paper quoting the lady correspondent observes, " that without shade the estates would have fared much worse than they have."

In the great majority of places the mistake has been made of planting the shade trees too closely together, and instead of eliminating the superfluous trees as they grew into one another, of lopping off their lateral branches, thus reducing their spread and leaving a vastly larger number of boles encumbering the ground than than was necessary, and the land permeated with an undue mass of roots. The great desideratum is to have as few stems on the land as possible.

The credit belongs to the late Mr. R. H. Elliott, the well-known Mysore planter, of having reduced the growing of shade for coffee to a science. He has treated the subject very exhaustively in his book "Gold, Sport and Coffee Planting in Mysore"; and because of the one chapter it contains on shade for coffee if for nothing else—and it contains a lot of valuable information on the cultivation of coffee and on other matters—it deserves a place in every coffee planter's library.

Trees of the ficus tribe were held in great repute as suitable shade for coffee, but they are discredited in South Coorg now-a-days; yet coffee thrives under them. The great rule to observe in connection with shade trees is, that if the coffee is doing well, not to interfere. The objection to the ficus species is that unless there is a good depth of soil their roots mostly permeate the surface, and thus deprive the coffee of nourishment; but this seems to be more than compensated for by the heavy mulch they supply the soil with, because, as has been pointed out above, coffee thrives under them. The only tree that is deep-rooted, and draws its nourishment mostly from the sub-soil is the jak (*Artocarpus Integrifolia*), which is admirably suited for all aspects except the cool humid northern slopes. Some other trees that are held in high favour as shade are the " Ceylon

Oak" (*Schleichera trifuga*), *Dalbergia latifolia* and *Terminalia beberica*. These three are best suited for southern and eastern slopes. *Albizzia stipulata* and *Albizzia odoratissima*, affording as they do a light shade would appropriately find a place on northern aspects. The silver oak has also come into favour as a permanent shade. It grows rapidly and affords a heavy leaf deposit. As the shape of the trees is pyramidical and they have not much of a spread, and in consequence cast a long lateral shade, they are best planted in avenues from East to West on Southern aspects, 15 feet apart in the avenues and 20 to 25 feet between them. It is worthy of note that trees which are deciduous in the cold weather are no protection against borer, as it is during this period of the year that the insects' eggs are hatched.

To Mr. Nelson, late of Shencottah in Travancore, belongs the credit of having introduced *Erythrina lithosperma*. He claimed that coffee cultivated under them and mulched with their cuttings and leaves, which are said to contain 2·77 per cent. of nitrogen and 2·79 per cent. of potash, would yield largely, without manure of any other description being necessary. This was corroborated by the late Mr. J. D'Vaz, a well-known Coorg planter. Writing to the "Madras Mail," he said that it keeps coffee free of leaf disease, and enables it to bear an even crop though manures of no other kind had been applied for a number of years. Mr. Herbert Wright, late of Ceylon, recommended the growing of *E. lithosperma* as a green manure; but Mr. Nelson recommended it as a permanent shade, and the lopping of the trees in July-August to provide a heavy soil mulch. Fortunately the trees lend themselves to severe cutting, and shoot out with vigour again and afford shade for the coffee during the sunny months. But though the tree has been largely grown, planters generally do not place much faith in the claims made on its behalf, and very little mulching is done with it, and certainly there is no diminution in the use of manures.—(Indian Scientific Agriculturist.)

MANURES.

NITRATE OF SODA OR SULPHATE OF AMMONIA ?

Writing in the "Mark Lane Express Agricultural Journal," a French correspondent, A. Morirllez, compares the respective merits of these two fertilizers :—

Undoubtedly nitrate of soda and sulphate of ammonia are the best, the most efficacious, and, in practice, the most convenient forms of nitrogenous fertilisers in general use. There is a place in agriculture for both of these fertilisers, but it is important that we should give to each its proper place in agreement with the testimony of science and of agricultural practice.

Nitrate of soda contains at least 15·5 per cent. of nitrate nitrogen; sulphate of ammonia contains 20 to 20·5 per cent of ammonia nitrogen.

Nitrate nitrogen is directly assimilable, *i. e.* it can be immediately absorbed by the plants.

Ammonia nitrogen, on the other hand, has to be converted into nitrate nitrogen before it is assimilable, and the normal accomplishment of this conversion demands the presence of certain agents as a condition—a nitrifying bacterium, organic matter on which this bacterium feeds, the presence of lime or other bases capable of absorbing the nitric acid produced, a moderate amount of moisture, and, finally, a certain temperature.

Now, though the three first conditions may usually be found existing together in the soil, this is not so in the case of the other two, and especially the last. It will be seen that when nitrification is prevented by dryness or cold, the action of sulphate of ammonia upon the plant is correspondingly arrested, and the result is a retarding of growth which is seldom recovered. In this respect, nitrate has an important advantage over sulphate of ammonia. Therefore, when at the end of the winter the crops require a tonic, only nitrate of soda can supply this, for the nitrogen in sulphate of ammonia cannot properly begin to nitrify till the warm weather sets in, and even if it is applied before then the plants remain unfed.

Further, one has to rely on nitrate to remedy the unhealthy conditions of cereal crops brought about by unfavourable temperature, by insects, or by diseases inherent in the species. Unlike sulphate of ammonia, nitrate acts immediately, and gives to the plant the vigour necessary to enable it to resist disease and to continue its cycle of vegetation. Under the most favourable conditions the nitrification of sulphate cannot be completed in less than three or four weeks. It has also been ascertained that not all the ammonia nitrogen in sulphate of ammonia undergoes nitrification; only about 90 per cent. is found to have become nitrate nitrogen, even should there have been no loss of nitrogen from volatilisation in the atmosphere.

According to many scientists, that part of the nitrogen in sulphate of ammonia which appears to be lost is absorbed by the lower organisms of the soil, and is given up later, although for a time they withhold it from the plants.

However this may be, Monsieur Damseaux has established experimentally the fact that, after annual applications of sulphate of ammonia on the same plot of land during five or six years, the manurial action produced by the ammonia in the last year remained the same as that produced by the same amount in the first year.

Sulphate of ammonia unlike nitrate of soda, cannot be applied on all soils. On this point we will quote Deherain, whose authority as a scientist is unquestioned and unquestionable. He says.—

"On soil lacking in lime, sulphate of ammonia should not be used, for the absence of lime prevents nitrification. On limestone soils there is another disadvantage, for, on decomposition, carbonate of ammonia is produced, which is highly volatile and escapes in gaseous forms, especially when the temperature is high. Sulphate of ammonia is only fairly successful on light soils containing lime, for these soils quickly become dry, and thus prevent nitrification. Only strong soils containing lime are really suitable for sulphate of ammonia. For soils on which nitrate of soda can be used it is not necessary to make such a scrupulously careful selection as for sulphate of ammonia; in fact, nitrate of soda is suitable for all soils, and gives an exuberance of vegetation produced by no other fertiliser."

Beyond nitrogen, sulphate of ammonia contains nothing but sulphuric acid, an element necessary for vegetation, but which, however is never lacking in any soil. On the other hand, nitrate of soda contains, as a secondary element, soda, which is capable of replacing potash when the latter is deficient, as is the case of many, and especially calcareous (chalky), soils.

According to experiments made by a Belgian scientist, Monsieur Schreiber, on maize, the action of the soda contained in nitrate of soda is equivalent to 20 per cent. of the value of a corresponding quantity of potash. Thus, when 100 lbs. of nitrate, containing 35 per cent. of soda, are applied to a crop, the action of this soda is equivalent to 35 x 0·2—7 lbs. of potash—which is by no means negligible, and may account for the superiority of nitrate for certain crops which need a great deal of potash.

The capacity of nitrate to absorb water is much greater than that of sulphate of ammonia, which means that growing crops suffer less from drought when dressed with nitrate than those with sulphate.

Nitrate of soda, simply from the fact that it is highly soluble, penetrates the soil readily, whilst sulphate of ammonia, held by the power of absorption of the soil, becomes distributed much more slowly.

It has been contended against nitrate of soda that it is too readily soluble, this causing some of its nitrogen to be lost in the sub-soil. But if this is true in the case of the nitrogen in nitrate, it is equally so in the case of the nitrogen in ammonia as soon as it has been nitrified, especially if the sulphate of ammonia is applied in large dressings before the winter.

As for loss of nitrate nitrogen during the great growing time of plants, say from April to the end of the summer, it has been established scientifically and experimentally, that there is no such thing.

As for facility of application, assuming that sulphate of ammonia must be applied to the soil a fortnight to a month before the sowing to ensure its action in due time no such precaution is necessary in the case of nitrate of soda, which can be applied as a top dressing as needed during the growth of the plants.

A great many scientists have conducted experiments to establish the comparative values of nitrate of soda and sulphate of ammonia. Wagner, director of the agricultural station at Darmstadt, taking the results of 1800 experiments carried out during many years, obtained a co-efficient of availability of 94 for ammonia nitrogen, as compared with 100 for nitrate nitrogen. But these results had reference to pot experiments, and it is permissible to inquire to what degree this co-efficient would be correct for ammonia nitrogen in actual agricultural practice.

Monsieur Damseaux came to the conclusion, as the result of a large number of experiments, that under normal agricultural conditions 60 per cent of the nitrogen applied to the soil in nitrate form is recovered in the crops, again 45 per cent. in the case of ammonia nitrogen. In other words, according to this expert, the availability of the nitrogen when applied in the form of ammonia is 75 per cent. of what it is when applied in the form of nitrate.

Lawes and Gilbert, in their notable experiments at Rothamsted, carried out over a period of fifty years obtained results in the fertilisation of wheat, oats, barley, and pasture lands which demonstrated the superiority of nitrate of soda to sulphate of ammonia. The experiments of Deherain confirmed those of Lawes and Gilbert.

To sum up, given the fact that the fertilising action of nitrate is immediate rapid, certain and in no way subject to chance, whereas sulphate of ammonia, which in part remains inactive, can only develop a fertilising action when all conditions are favourable to nitrification, farmers will in most cases, and especially in the spring, do well to give preference to nitrate of soda.

RUBBER ROADS.

KUALA LUMPUR EXPERIMENTS.

Encouraging Progress.

The elastic flagstones at Euston Station are said to have stood the test of London's traffic for close upon twenty years and those in the Savoy courtyard for a like period. The wear amounts to one-eighth of an inch chafe on the rubber surface. So much for the men who mixed the rubber and its concrete foundation. The cost, however, is another matter, and there are no figures to hand to justify either as a commercial proposition.

Taking advantage of other people's failures, and rectifying their own, Kuala Lumpur may yet pave the way for practical rubber roadways, and, at present prices, set the example by being the first town wholly paved with her own commodity. In January of this year experiments were being made by the Public Works Department to improve upon the methods of adhesion previously adopted by what may be termed "ferrocaoutchouc" blockmakers. The work which has made encouraging progress, is in the hands of Mr. R. St. George Caulfeild, Executive Engineer, who has vulcanised to advantage the weak points noticed in his personal inspection of Home experiments. The rubber brick now likely to be adopted bears his name and patent. The size of the ordinary brick, nine inches by three, has been adopted, whilst the depth will vary. About half an inch only of this thickness is rubber, the remainder being concrete, adhesion between the two being formed under pressure and secured by an almost continuous ring of expanded metal. The allocation of a certain amount of money recommended by the Director of Public Works for experimental purposes has already the dual advantage of the Chief Secretary's sanction and keen interest, and, as soon as the blocks have passed the further resiliency and abrasion tests of the Director of Agriculture the work will be proceeded with.

The actual section of Kuala Lumpur's highway to be rubber-paved has not been decided upon, but, in view of the blessing that would be conferred, it has been suggested that the station covered way and approaches would lend itself admirably to the experiment. The only objection to experimenting on a covered way would appear to be the shade it would consequently enjoy, making subsequent tropical actinic-ray tests impossible, a factor hitherto unproven. The section of Clarke Street usually barred off during Federal Council sittings would be another excellent spot.

The sample blocks already moulded are the work of Messrs. Mace, Hall & Co., Ipoh, the quality of which supersedes any Malaya or London-made article we have hitherto seen. Percentage brick tests in every delivery will doubtless be insisted on both by the contractor and Government, and this should keep the "tukangs" to the necessity for perfection and leave no air pockets of neglect. Until made, of course, in very large quantities the price is difficult to estimate, but it has been roughly calculated on the weather side of 30 dollars per square yard, which makes Southwark's cost of five pounds look like Mammon's marriage bill. Even at this reduced figure it will need a life of twenty years to justify its existence. With rubber at its present prices the enterprise sounds like a pulsating possibility but with normal prices once more regained the highways might have again to revert to the diet of jarrah blocks, and stocks of the new invention be reserved for hospitals and Air Ministers.—"Malay Mail."

RUBBER ROADS.

EXPERIMENTS IN LONDON.

After a lapse of six years, says a home paper the International Rubber Exhibition is being revived this year, and opens at the Royal Agricultural Hall, Islington. This is the fifth exhibition of the series, but for the present occasion its scope has been extended so as to include not only rubber and cotton, but all other tropical products and allied industries. Embracing as it does products from fifty-seven British and foreign Governments and States, it is easily the largest and most representative of the series, and this despite the difficulties of transport consequent upon the industrial situation, the only notable absentee on this occasion as compared with previous years being Germany.

Although the day is long past when manufacturers were dependent upon what is now known as "wild rubber"—that obtained from various trees, creepers, and shrubs mostly growing in the tropical regions of South America and Africa—to supply their needs, very little is known by the average individual of the more modern method of cultivation and collection. The organisers of the exhibition may, therefore, be regarded in the light of popular educators, for they have set themselves out to demonstrate the various processes through which the crude rubber passes, from the moment it is taken from the tree in the form of latex to the finished article. Nor is the extent to which rubber enters into the daily needs of the community generally appreciated. As a constituent in the manufacture of tyres, beltings, cushions, shoe soles, and waterproof garments it is familiar to all, but with the acquisition of greater knowledge, following upon scientific research, it has been found possible to adopt the commodity for use in the manufacture of such widely-differing articles as gramaphone horns and rubber carpeting, to give but two examples. For the latter many advantages are claimed by its manufacturers, the North British Rubber Co., and are readily apparent. All this and much more will visitors to the exhibition find to interest them, and a survey of the stands which have been prepared by the Governments of British Malaya, Ceylon, and the Gold Coast give a very comprehensive idea of the growth of the rubber industry within the Empire. Of interest, too, are the exhibits from Brazil, and the French, Dutch, and Portuguese colonies.

Some interesting facts concerning the progress that has been made in the various branches of the industry were given by Sir Ernest Birch, who presided at a luncheon which followed the private view of the exhibition yesterday. Last year the estimated production of rubber was 335,000 tons. Between 70 and 80 per cent. of that rubber was British, and £150,000,000 of British capital was invested in the industry. " Rubber roadways are no longer in the experimental stage," declared Sir Ernest. "In the Borough High street there is a road laid with rubber which is being watched with interest by road engineers and surveyors throughout the country. Rubber floors have been given by the Rubber Growers' Association to various charitable institutions, and there is not the least question that it would be of the greatest benefit both in the matter of noise and for hygienic purposes, if similar floors were laid in all hospitals, clubs, and public institutions". So great is Sir Ernest's faith in the future of rubber that he expressed his readiness to induce some of the great rubber producing companies to supply the rubber free if any of the principal railway companies would undertake to pave their station platforms and ground floors with rubber.

In closing, Sir Ernest Birch made a happy reference to the presence that day of Sir Henry Wickham, "the grand-father of the rubber industry," recalling the fact that it was to him that the now prosperous rubber-growing estates of Ceylon and Malaysia owed their being. The seeds of the Hevea Brasiliens's were sent from Brazil to Kew Gardens by Sir Henry Wickham in 1876. The seedlings grown at Kew Gardens were sent to Ceylon, and from this small beginning has grown the whole great plantation business of the Far East.

The exhibition will be opened by Sir Owen Philipps, M. P., and will continue until June 17.

LETTERS TO THE EDITOR.

(*The Planters' Chronicle is not responsible for the opinions of its Correspondents.*)

"Upasi Buying Agency."

Dear Sir,—I received a circular the other day asking me to join this Agency, which I take it is an outcome of the old proposal to form a Planters' Co-operative Society. The latter was doomed to failure from the beginning, and I cannot help thinking that this Buying Agency is likewise doomed.

In the first place it appears to me that the running of such a concern is absolutely outside the province of the United Planters' Association of South India altogether, and perhaps you can tell me, Mr. Editor, if their Memorandum and Articles of Association give them power to run such an Agency, and if it does, will you kindly give the paragraph under which you assume such power has been given.

Is it to get up a show in opposition to the West Coast Firms who are members and have large interests in the Association, or is it that the Association's officials have not enough to do and require some further outlet for their energy that this Agency has been started ?

Since the Association was reorganised in 1918 the principal object it has had before it, or at any rate should have had, is the improvement and further development of its labour organisation. Has this been done, and how many planters can say that they have received tangible benefits from the Association in respect of labour during the last three years? Perhaps a few, but they are a mighty few, and certainly as a whole Estates are not getting their money's worth out of the Association.

I believe the appointment of Mr. Brock was made with the idea of enabling Mr. Waddington to devote more time to labour matters. Of course, Mr. Waddington had to have his leave, and well deserved leave too, which no one can possibly grudge him, and we may possibly get better results when he returns, but meantime, would not the Executive Committee, or General Committee, whoever is responsible for this Buying Agency, have been acting more in the interests of the Planting Community generally if they had so arranged that the surplus power of the officials of the Association had been devoted to further organisation of the labour department, rather than to a fantastic concern like that of the UPASI BUYING AGENCY.

Then again take the matter of Statistics. I read in the Memorandum of the Association that one of the objects for which the Association was established was to collect and disseminate statistics and other information relating to planting industries. What has been done? Nothing, I believe, at any rate I have never heard of Statistics being disseminated amongst the members of the Association. Surely this is a matter of much more importance to the planting community than this Buying Agency, which I believe has only been subscribed to by a very few, and that in a rather half-hearted way.

Even although times are hard Estates, I take it, are still paying their subscriptions to the Association, and want something in return. The discounts and terms of payment offered by the Firms on the Upasi Buying list can, I believe, be got by most Estates, and can possibly be improved upon independently of the U. P. A. S. I.

Yours,

INTERESTED.

(NOTE BY THE EDITOR, P. C.)—

Interested's letter raises points which we shall be only too glad to see discussed. On the question of authority to run such an Agency, there is precedent for this, and the. Memorandum of Association Section 3 (1) and (11) covers the action of the U.P.A.S.I. in the matter. The Agency is apparently buying from " Firms who are Members," and so can hardly be said to be in "opposition" to those Members. The point regarding Statistics is answered by the fruitless efforts made in 1920 to get figures from planters. We believe the 1918 figures for Rubber to be more complete than any other published statistics, but the effort was enormous, and it would require especial measures to elaborate them, apart from the fact that in 1920 there was a general refusal on the part of some 75% of *Interested's* brother planters to give their figures. We await with great interest any further correspondence our readers may care to send us on the subject.

The Planters' Chronicle.

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EDWIN VINCENT,

Managing Editor, Coimbatore, S. India.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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THE ANNUAL GENERAL MEETING.

Our correspondence pages contain again this week a thoughtful letter regarding the internal working of the U. P. A. S. I., and this, following as it does on the letter signed "Interested" in last week's issue, emboldens us to consider for a moment the points raised by our two correspondents. We will ask however to be excused regarding the Upasi Buying Agency, which was bound to come in for a certain amount of criticism of course, but which is now in the hands of a standing Committee, and that Committee if they think fit will no doubt answer "Interested's" letter in due course. Before we proceed to discuss the points raised, and perhaps others, in connection with the Annual General Meeting of the U. P. A. S. I. it is our duty to point out that the latest date for sending in original propositions is July 13th (*vide* P. C. No. 24, 11th June), and since both "Interested" and "Fact" seem to hope that some District Planters' Association will bring forward resolutions on the particular points they raise, we would remind planters that time presses, in fact by the time this issue reaches some of the remoter districts only a wire to Headquarters will meet the case.

We will take "Fact" first. It is common knowledge, of course, that his proposition is similar, in fact identical, with that framed by the Secretary (Rule V) and put before the Annual Meeting in 1919, *viz* —"The election of the Executive Committee shall be by ballot." We see nothing in subsequent events likely to change the points of view expressed by those who wished to alter this rule by adding the words "representatives of each industry to be elected by the votes of the area under the corresponding product only." They gained their point, it is true, by a comparatively small margin and, without wishing to express a definite opinion either for or against "Fact's" suggestion, we do think that the rule has worked satisfactorily so far, and something more powerful than the argument adduced by our correspondent will be needed to change it. The question of repugnance to the Articles of Association is one for the Association's lawyers: we certainly have no desire to make a pronouncement of our views on that point. There is just one other aspect however which was not thought of apparently in 1919. It is perfectly true, and is freely admitted that one District Association, under the present rule, might conceivably elect its own representative to the Executive Committee. But at least that election would be by men interested in the particular industry for which the member was nominated. Under the proposed rule, one District Association could not possibly dominate the election, but one industry could. The acreage figures are eloquent of that, and we should have Tea, with its preponderating acreage, using just that influence which "Fact" deplores in a certain District Rubber Association. Let us suppose there are three candidates for the job of coffee member, on the Executive Committee, it is obvious that the Tea acreage, supporting any one of them, could get their man in, particularly if Rubber and Coffee were voting at cross purposes. In fact, if the important minority acreages are to be considered, and they must be, the system of separate election must be best.

Personally we do not believe either in the bogey set up by the separatists, or by our correspondent. We believe that a straightforward election of the Executive Committee would pan out much as it does with each product electing its own man. Surely, before voting on a member for coffee, the Tea and Rubber Planters would ask the Coffee men for suggestions? The point is whether there should be or not the loophole mentioned both by "Fact" and ourselves, by which one Association or one industry could dominate the election, if they so wished. Either way, our position is not on the one side or the other, but since argument has been put forward by our correspondent for the omnibus election, we seek to put the other point of view as well before our readers. Finally, since it is always as well to be constructive, why should the suggestion not be discussed of each product *nominating* two men, but the actual election by which it is decided which of the two shall be active, and which member-in-waiting, being by the votes of the whole industry.

Thus, coffee, for example, puts up its two men. It is sure to get its own nominees elected, but whether "A" shall be member-in-waiting to "B," or *vice versa* rests upon all the members voting, and in this way the product gets at least one of the men it wants, and knows that he is acceptable to the rest of the community as an active member of the Executive Committee.

"Interested's" letter falls naturally into three divisions. The Buying Agency which, as we have said, we will leave alone for the moment, the improvement and further development of the Labour Department and Statistics. The improvement of the Labour Department is a question fruitful of discussion, but to the writer, whose connection with it is well enough known, the position is clear enough. "Interested" says:—"How many planters can say they have received tangible benefits......in respect of labour." We presume he means by direct recruitment, in which case the answer is "nil" just as if you asked your wine merchant what stocks of ladies' underwear he held. But if we ask what the Labour Department has done in the directions for which it is best fitted, and in fact for which it was originally formed, the answer is in the report of the Director which we may not anticipate here, but which gives most tangible evidence indeed of its uses. The irony of it all is that, just at a moment when letters like " Interested's " appear in print the authorities responsible for the Labour Department are faced with the necessity of cutting down expenditure to an irreducible minimum, instead of being able to meet demands, such as " Interested's," for development by increased allotment of funds.

Last week, in a footnote, we had something to say regarding statistics. The U. P. A. S. I. made a valiant effort in 1919, and again in 1920 to meet this point. The Rubber Statistics published in 1920 we claim to have been as near perfection in regard to accuracy as can reasonably be expected. The following year, planters simply ignored the requests wholesale. Again, in response to resolutions passed by the U. P. A. S. I., the Government issues reports regarding Rubber and Coffee on the lines of the Tea report. We understand that copies of these are being obtained, and are being circulated by the U. P. A. S. I. This is a matter we are personally very deeply interested in, and if "Interested," or any other correspondent will give us some idea of what figures and information are wanted exactly, we will do all in our power to obtain and disseminate them.

Above all, we hope these two letters will be followed up by many more. Nothing is healthier than dignified criticism, and nothing will refresh jaded nerves so much as this kind of tonic. We welcome them for that reason, equally with their intrinsic worth.

NORTH MYSORE PLANTERS' ASSOCIATION.

PROCEEDINGS OF THE QUARTERLY GENERAL MEETING, HELD AT BALEHONNUR, ON JUNE THE 27TH, 1921.

PRESENT.—Messrs. C. H. Godfrey, (Chairman), E. W. Fowke, E. L. Poyser, Captain H. Browne, M. A. de Weck, (Honorary Secretary).

MINUTES OF THE LAST MEETING.—The Minutes of the last General Meeting were read and passed.

RESOLUTION.—Proposed by Mr. E. W. Fowke, and seconded by Mr. E. L. Poyser:—" That the Honorary Secretary be requested to draw up a Balance Sheet for the past year, 1920-21, and submit same at the next Meeting, after auditing the accounts with Capt. H. Browne." Carried.

ANAMALLAI PLANTERS' ASSOCIATION'S PROPOSAL (to alter the U. P. A. S. I. Articles of Association):—Proposed from the Chair " that our delegates to the U. P. A. S. I. General Meeting be instructed to vote against this proposal."

AMENDMENT to Act XIII.—It was decided to leave this to our Delegates at the U. P. A. S. I. General Meeting.

ACCELERATION OF MAILS TO AND FROM MANGALORE.—It was resolved that the Honorary Secretary communicate with the Superintendent of Post Offices, Mysore Division.

INSTRUCTIONS TO DELEGATES TO U. P. A. S. I. GENERAL MEETING.—Subjects for proposal by us to be included in the U. P. A. S. I. Agenda :—

(a) Conservation of Indian Manures for use in India.

(b) That the suggestion contained in the U. P. A. S. I. Chairman's address of 1920, "That we take a more active participation in the Reformed Government of India" be discussed.

(c) Proposed by Mr. E. W. Fowke and seconded by Mr. E. L. Poyser "that the following resolution be added to the Inter-District Labour Rules :—"That no Association should raise the pay of coolies without giving previous notice of such intention to the Labour Department, for circulation to other Associations.'" Carried.

INSTRUCTIONS TO DASARA DELEGATE.—Proposed from the Chair :—"That our representative deliver an address to be approved of by the Committee, and in collaboration with the South Mysore Planters' Association if they are agreeable, embodying the proposals brought before the Meeting as per list lodged with the Honorary Secretary." Carried.

FINANCES AND ACCOUNTS.—Proposed from the Chair :—

(a) "That the Honorary Secretary be instructed to write to the present representative of the only two estates which have failed to pay the extra two annas levied by the U. P. A. S. I." Carried.

(b) "That the question of the Honorary Secretary's office allowance for present and past years be brought up again at the next Meeting." Carried.

REPORT OF RULES REVISION SUB-COMMITTEE.—Sub-Committee agreed to rules as printed in the Articles of Association, and decided to report at the next Meeting as to whether any addition should be made.

It was decided to forward the Articles of Association to the proper quarter.

OTHER BUSINESS.—

(1) Expenses were voted to Delegates :—

(a) U. P. A. S. I. Delegates Rs. 150 each.

(b) Dasara Representative Rs. 100.

(2) Resolved that the Committee be directed to get into touch with the other two Mysore Associations, and try to work out with them a feasible scheme for amalgamation of the three Associations, so that the scheme may be put before the Association's General Meeting later in the year.

(Signed) M. A. DEWECK,

Hon. Secretary.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore,

6th July, 1921.

SECRETARY'S REPORT No. 25.

1. ANNUAL MEETING.—The North Mysore Planters' Association have given notice for the following subjects to be included in the Agenda:—

(1) Conservation of Indian Manures for use in India.

(2) That the suggestion contained in the U. P. A. S. I. Chairman's address of 1920 "That we take a more active participation in the Reformed Government of India" be discussed.

(3) That the following resolution be added to the Inter-District Labour Rules, that no Association should raise the pay of coolies without giving previous notice of their intention to the Labour Department for circulation to other Associations.

2. In continuation of item (3) in the above paragraph, the Executive Committee have decided to place on the Agenda the South Indian Association in London's suggestions, with reference to Labour Rates of pay, for discussion. These suggestions appeared in full on pages 10 and 11 of the Report of the Committee of the S. I. A. in London, for the year 1920, copies of which were forwarded to all District Associations on 2nd May last.

3. BUYING AGENCY.—A meeting of the Standing Committee appointed for the control of this Agency was held at Coimbatore on the 4th instant, at which five more firms were added to the Agency Buying List. Particulars of these are being sent to all Members of the Agency.

The Committee considered a suggestion received to the effect that orders might be sent direct to firms, who might be supplied with a list of Members, instead of through the Agency Office. The Committee wish to point out that this point had been discussed with firms, and most were in favour of all orders being forwarded through the Agency Office, and so the procedure as originally laid down must be adhered to.

With reference to Home Indents, the Committee have decided that all orders, for the present at any rate, must be accompanied with cash in advance. Further, that, if individual orders are large enough they will be forwarded immediately to London for execution; if, on the other hand, the order is too small a one to send on by itself, the Indentor will be asked whether he will allow his order to wait until other orders are received with which it can be bulked, or whether he would like to cancel his order and make his purchase locally at the best terms obtainable.

(Signed) C. H. BROCK,

Acting Secretary.

INDIAN TEA ASSOCIATION.

ABSTRACT OF PROCEEDINGS OF A MEETING OF THE GENERAL COMMITTEE, HELD AT CALCUTTA, 21ST JUNE, 1921.

CORRESPONDENCE WITH THE INDIAN TEA ASSOCIATION, (LONDON). —Letters, dated 19th and 26th May, from the Indian Tea Association, (London), which had been circulated to the Committee, were now before them for consideration. The principal subjects dealt with in these letters were the following :—

(*a*) POSITION OF THE 1920 CROP.—It will be remembered that the Committee recently asked members for information as to the position of the 1920 crop as at 1st April, 1921—the quantities still on the gardens at that date, the quantities in transit to Calcutta or Chittagong, and the quantities lying unsold or unshipped at these places. The total figures compiled from the returns received were in due course forwarded to the London Committee for information. In their letter of 19th May, they asked that figures should also be cabled to them of the estimated quantity of the 1920 crop still to be shipped from Calcutta and Chittagong at the end of May.

The Committee decided to issue a circular to agency houses asking for this information.

(*b*) *Regulation of shipments from India.*—In the proceedings of last meeting, reference was made to the correspondence which the Committee have recently had on this subject with the Indian Tea Association, (London), and there was quoted a telegram received from that Association regarding the proposal which the General Committee put forward that, if sales were restricted in London, private sales during the period of such restriction should be barred. The feeling of the Committee was that, if sales were restricted in London, this might lead to a certain amount of restriction of shipments from India; and it is within the knowledge of members that efforts to obtain a real restriction of shipments were found to be ineffective without the co-operation of the Liners Conference in the matter.

In their letter of 26th May, the London Association explained that the Chairman and Vice-Chairman of the Association had, in February last, discussed with Sir John Ellerman the question of the rationing of space by the Liners Conference, that Sir John had stated that one of the Lines absolutely refused to have anything to do with the proposal, and that nothing had since transpired to indicate that they would be likely to depart from this attitude. The feeling of the London Committee was that, in view of the protests made by certain shippers against the action of the Association in recommending rationing of space, the Conference would not be likely to co-operate. On the question of barring private sales during any period of restriction, the London Committee foreshadowed the reply which they later cabled to the General Committee, namely, that the proposal did not meet with sufficient support in London to allow it to be put into force.

The Committee discussed the position generally, in view of this information from London. They assumed that the London Association would no doubt keep before them the position of stocks in the London warehouses, and the possibility of an accumulation of teas later on, when the new season's teas arrived. The London Association were accordingly to be asked to give the earliest possible information, if they considered it necessary that a recommendation should be issued at any time to shippers to restrict their shipments. And meantime a reply was to be awaited to the cable which the Committee decided, at their last meeting, to send to London asking whether it was proposed to arrange that no new crop should be offered in auction there until sales of the old crop had been completed.

(c) *Ocean freight agreement* : *the tea rate*—With their letter of 26th May, the London Association forwarded copy of further correspondence which they had had with the London Conference regarding the question of the tea rate. They had pointed out to the Conference that the rate of freight for tea from Calcutta was, in the first three months of 1921, relatively higher than the freight on any other route. As a similar disparity did not exist in 1920, the London Committee reluctantly concluded that the tea rate from Calcutta had been maintained at an artificial level. In this connection reference was also made to the paucity of rough cargo shipped, the tea rate being, of course, based on the shipments of rough cargo.

In this connection, the Chairman referred to the decision, at the last meeting of the Committee, that the attention of the London Association should be called to the difference in rates in favour of the Continent, as against the United Kingdom, whenever such difference amounted to 5/- or more. He explained that in point of fact the difference had exceeded 5/- recently, and that he would have given instructions for a cable to be sent to London in accordance with the General Committee's decision ; but that he understood, from information which he had received, that discussions were meantime proceeding at home between the Conference there and the London Association with reference to the whole question, and for the time being he had delayed sending the cable. As the Committee's information was that the difference still exceeded 5/-, it was now agreed that a cable should be despatched to London accordingly.

(*d*) INDIAN HOMEWARD BILL OF LADING.—This matter was referred to in the proceedings of last meeting, when it was mentioned that the London Committee had before them correspondence with Messrs. Cayzer, Irvine & Co., regarding the Clan Line's suggested alterations in the form of bill of lading. It was now mentioned that the London Association had suggested to Messrs. Cayzer, Irvine & Co., that, as the matter of the bill of lading was now being taken up by the various bodies engaged in the Indian trade with the Imperial Shipping Committee, it was thought better to defer consideration of this question.

STATISTICS IN CONNECTION WITH TEA :—In a demi-official letter, dated 10th June, the Director of Statistics stated that the International Institute of Agriculture, Rome, proposed to include in their publications statistics of the tea crop in the principal countries of the world ; they had accordingly asked the Department of Statistics to supply them with monthly information regarding the crop in respect of India by filling up a special schedule, of which a copy was forwarded. The Department did not possess any monthly information regarding the tea crop in India, and the Director accordingly asked whether it would be possible to obtain the desired information through the Association.

The Committee now considered the schedule referred to. They thought they could give useful information monthly under the principal headings in the schedule, and they directed that this information should be forwarded periodically to the Director of Statistics.

THE LEAGUE OF NATIONS: INTERNATIONAL CREDITS SCHEME.—The Committee had received the following letter, dated 10th May; from Sir Drummond Drummond Fraser, Organiser, International Credits:—

I enclose for your information five copies of a pamphlet explaining the International Credits Scheme, of which I have been appointed Organiser under the League of Nations.

I hope this pamphlet may be brought to the notice of all your members interested in export trade, and I shall be glad to receive their comments or practical suggestions, and to give information on points requiring further explanation.

I would ask you, in circulating the pamphlet, to emphasise the following point. No practical steps can be taken until the Governments of "importing countries" apply for an issue of bonds. For this purpose it is important to stimulate a demand for such a step among traders in those countries. Exporters in this country can assist greatly in creating such a demand, by impressing on any foreign importer, who cannot obtain the necessary credit without providing some special security, that this scheme provides his best chance of obtaining financial facilities on reasonable terms. By doing this, exporters in this country who wish to take advantage of the scheme can best help to accelerate its inauguration.

I have referred, in the above sentence, only to the case of an importer "who cannot obtain the necessary credit without providing some special security." I wish to make it clear that I am in no way advocating the adoption of this scheme in cases where traders are able to do business, by the ordinary methods, without it. On the other hand I wish its value to be appreciated, when this is not possible.

Copies of the pamphlet referred to may be seen by members on application to the Secretary of the Association.

THE RUBBER EXHIBITION.

We take the following interesting notes from the *India Rubber Journal's* article in Mail Week on " What's new at the Exhibition."

LATEX TO DRY RUBBER " WHILE YOU WAIT."—Another set of exhibits possessing the attraction of novelty are those illustrating the " Davidson" process for the manufacture of raw rubber from the latex. At their stand in the Gilbey Hall, Messrs. Davidson and Co , Ltd., Sirocco Engineering Works, Belfast, have working models of the complete plant required for carrying out this process, by means of which rolls of perfectly dry rubber are produced from the latex in 25 minutes from start to finish of the series of operations. Messrs. Davidson and Co. employ a special preservative for the latex, and also a special coagulant, the nature of which they do not divulge. The preservative is known as " Siroxidine," and is prepared for shipment in flat blocks. A solution of this preparation in water is mixed with the latex as soon as possible, but preferably not later than three hours after tapping. The latex, when thus treated will remain in a perfectly fluid condition for any length of time; some samples which we saw had been in the firm's possession for over five years, and showed no signs of clotting. If a big demand were to develop for the crude latex in this country or the U. S. A., there would, therefore, apparently be no difficulty in shipping it in tank steamers as oil is now sent. The first stage in the process is the coagulation of the latex, which is carried out in a specially devised coagulating machine, consisting of a rocking cradle or tank, which keeps the latex in constant agitation, while the coagulant drips into it from a measure-glass reservoir. Owing to its peculiar construction this cradle keeps the latex or coagulum constantly turning over upon itself, and complete coagulation takes place in about five minutes. The coagulum is then removed to the second machine employed in the process, viz , the dehydrating machine, which is fitted with a set of vertically-operating pins which pierce the soft mass through and through from top to bottom as it passes under them. Within another five minutes the " mat " of coagulum pierced with numerous tiny punctures has lost between 50 and 60 per cent. of its free and uncombined water. It then goes to the boiler, where it is treated for another five minutes, and loses a certain amount of its acidity. After boiling the " mat " goes to the sheeting machine, and thereafter it is immersed in a warm alkaline bath of suitable strength, which not only neutralises completely its remaining acidity, but also imparts a slightly alkaline condition to the rubber. The final operation is rolling and taping. The sheet is first rolled by hand, and then this roll is inserted in the Triplex rolling machine. This machine consists of three rollers, all rotating in the same direction. The upper roller has an adjustable vertical movement to enable the roll of rubber to be inserted between the three rollers, which considerably exceed it in length. A gradually increasing pressure is then applied while the rubber is being rolled round and round upon itself. This rolling action not only expels practically all the remaining free or uncombined water in the rubber, but has also a kneading effect upon it which completely welds together the globules and laminations of the loosely rolled-up sheet into a solid roll, while elongating it to the full length of the rollers. The entire roll, while still under pressure and at its full length, is banded round with stout cotton tape, the feeding-in end of which is fitted with a special little buckle which ensures an effective first grip being obtained on the roll.

This taping of the roll performs the further beneficial service of absorbing any slight remnants of uncombined moisture which may still be in the rubber, and which gradually oozes to the surface of the roll. The taping prevents the formation of a somewhat waterproof skin. After removal from the Triplex, the roll not only retains its full length, but actually elongates slightly under the increasing pressure of the tape as the latter gradually dries, and thereby further contracts on the rubber. The taped roll is then hung up under cover for two or three days, after which the tape may be removed, leaving the rubber permanently at its full length, and absolutely free of uncombined moisture. A square inch of this rubber has been subjected to hydraulic pressure up to as much as eight tons, and did not exude any free moisture whatever. The rolls of rubber are usually white, or of a pale yellow hue, and do not discolour from exposure to sunshine or strong daylight. As regards packing for shipment, they only require to be tied in suitable sized bundles and covered with gunny.

Periodical demonstrations of the process were given during the course of the week, and attracted many observers, the rapidity with which it is carried out impressing everyone. This of course is the first time the process has been demonstrated, and the Industry will require further assurances on several points before making up its mind as to the practical advantages of the method. The output of dry rubber per unit of plant per hour needs to be stated definitely, and both manufacturers who use the rubber, and planters who sell it to them will naturally expect to be told the composition of the preservative which is employed, as this remains in the rubber.

Rubber Roadways and Railway Platforms.

Sir Ernest Birch, K.C.M.G., Chairman of the Executive Committee, speaking at a gathering of Press representatives in connection with the opening of the Exhibition, described the growth of the rubber planting industry, and pointed to new uses to which rubber was being and could be put. He said the last exhibition was held in 1914, and since then the war had supervened. One incident connected with that exhibition was that the Germans suddenly rushed back to their own country and left their debts behind them! The present exhibition was due to the initiative and organisation of his friend Mr. Montgomery. There were some who, when the subject was mooted a year ago, were diffident as to whether it would not be wiser to wait for better times, owing to the depression of trade. He admitted that he was one of the faint-hearted ones, but Mr. Montgomery's determination and perseverance converted him, and he presumed that was why he was in the forefront of the movement that day.

The R. G. A. Competition.

After an absence of ten years he had the opportunity recently of visiting the Malay States, and he was astonished to see the great development of the rubber industry. He thought it was a matter for regret that so many natives had been allowed to plant rubber in small holdings and very often in most unsuitable land. He noticed the very much improved conditions under which Tamil labour was obtained and maintained upon the various estates.

The Rubber Growers' Association organised a prize scheme for suggestions for new uses of rubber, and as nearly 2,000 entries were received the adjudicators found it impossible to make their award in time for the present exhibition.

Rubber Roadways and Floorings.

Rubber roadways were no longer a mere experiment. In Borough High Street (London) a rubber road had been laid, and was being carefully watched. It was possible rubber roadways would not become universal, but there were many localities in which they would prove an infinite boon. Rubber floors had been given to various hospitals and charitable institutions by the Rubber Growers' Association. They would prove of the greatest benefit, both for cleanliness, quietness and on the score of hygiene. In that exhibition a new kind of rubber linoleum flooring had been introduced. The North British Manufacturing Company had stated how much it could produce, and at what price. A representative of a great American firm would be present at that exhibition, and if that new flooring became an established fact it would consume 30,000 tons of rubber a year.

The Ideal Railway Station.

There was another matter which he had in mind, and that was that the great noise and turmoil which one experienced at any of the great railway stations could be avoided if the platforms, or the wheels of the trucks and barrows, were covered with rubber. If that experiment in Borough High Street, with its heavy traffic, proved successful, how much more so would it be if the scheme were adopted by the railway companies for their platforms and ground floors? "If any railway company," said Sir Ernest, in concluding, "will undertake to cover its platforms at one of its great junctions, like Willesden or Clapham Junction, I can undertake to name a company that will provide them with the rubber for that experiment free."

LABOUR LAWS IN CEYLON.

Penal Clauses That Must Go.

The draft of the Ordinance which is to make it impossible for a labourer or a servant—or indeed an employee of any kind to be sent to prison—because he absconds, neglects his work, is insolent, or disobedient, has now been published. Its translation into law is not likely to prove a serious matter. There will always be those who feel aggrieved by the deprivation of any power, and there may be some who will regard the penal clauses of the Ceylon Labour Laws as powers which it was useful to possess even though they were rarely exercised, but we imagine that the average fair-minded employer will recognise that, sooner or later, the new legislation was inevitable. Three different sets of employers are affected by the repeal of the Ordinances. First come the planters, secondly ordinary industrial and mercantile concerns, thirdly employers of domestic servants. The position of estate labourers is distinguished by the fact that most of them owe more or less large sums to their employers and constitute an asset which the employer would not readily lose. In view of the abolition of imprisonment for debt, in which the planters took the initiative, and the cooly's right to leave his employment at any time by giving a month's notice although he owed a large sum of money, it was felt that the planter had the right to possess effective means of keeping his labour from bolting, from being disobedient or from neglecting their work. There is, we think, no other employer who has similar claims to such drastic powers. As things stand, however, the planter could not hope to retain the penal provisions, and his only remedy now is to abolish indebtedness. The case of employers in the trades and industries is different. Only in rare cases does the labourer owe money and it is rarely that the penal clauses have been used. Next comes the case of the ordinary employer of domestic labour, who has hitherto enjoyed the unusual privilege of being able to take criminal proceedings against his servants in cases of refusing to work, disobedience, misbehaviour not amounting to crime, or absconding. Despite the idea that this is somehow a European affair it is undoubtedly the Ceylonese employers, particularly of the not very well-to-do class, who stand to lose most by the repeal of the Ordinance. Far more cases of prosecutions for bolting have been taken by Ceylonese than by European employers, and desertions are more numerous, probably owing to the greater awe in which European employers are held, and probably in many cases because the wages paid by Ceylonese employers, excepting the very wealthy, are smaller. Numerous prosecutions against chauffeurs who come under the Ordinance have been taken by Ceylonese employers, and it is probable that the abolition of the criminal remedy will at first cause considerable unsettlement.—*Times of Ceylon.*

BLIGHT.

Spraying Experiment with Nitrate of Potash.—Very largely increased growth has been obtained experimentally as a result of spraying the leaves of tobacco with nitrate of potash; and it was thought worth while to make a trial on a small scale with tea.

It was hoped that the result of the application might not only give largely increased crop, but might assist in decreasing the liability of the leaf to blight, since the increased growth obtained with tobacco had been ascribed to actual absorption of the salt by the leaf.

Twelve rows of very even tea were set aside for this experiment.

The first row was sprayed fortnightly, beginning in July with 10 gallons 1% nitrate of potash solution per 100 bushes.

The second row received no treatment

The third received the same amount of solution as the first row, but it was applied to the soil only, and not sprayed on to the leaves. The object of the third row was to determine how much of any benefit found from spraying might be ascribed to the mere manurial effect of the solution. As the nitrate of potash was applied at the rate of about 17 lbs. per acre at a time, some benefit from manuring might be expected, in the source of the season, although the amount applied in one application is negligibly small.

The remaining nine rows allowed for three repetitions of each of the above treatments.

Average yield in ounces green leaf per 100 bushes.

Sprayed.	Untreated.	Manured.
1,037	1,046	1,025

The results show no differences beyond experimental error, though as the sprayed lines were slightly the better to start with, it is probable that the spraying has done some harm, but very slight harm. Brown blight was, considering the season, fairly bad on this plot; and it appeared from observation that the sprayed bushes were slightly more attacked than the unsprayed.

Spraying with nitrate of potash, then, cannot be recommended as a treatment for tea, either for increasing the rate of growth or for decreasing blight attack.

The tea used had been cut down the previous cold weather, so that the spraying was on young growth, which might be expected to react better to such treatment than old leaves.

H. R. C. in the
Indian Tea Association Quarterly Journal, Part I, 1921.

THE EFFECT OF MANURES ON THE CONSTITUTION OF THE TEA PLANT.

Manures are applied to tea gardens for various reasons—the production of increased crop, the improvement of the soil, the helping of bushes through a blight attack, the growing of wood on cut-back tea, or the production of root-growth to shallow-rooted bushes. Seldom, however, is manure added with the idea of directly improving the quality of tea. As a matter of fact very little is known in this connection, although Mann and others quote figures indicating that nitrogen in excess produces poor quality tea, and that potash and phosphorus manures produce good teas.

The quality of tea is a very elusive factor and, apart from not being able to say what produces such complicated bodies as tannin and the essential oil in the leaf, we are at present unable to state definitely how any change in the content of the simpler products of the leaf—nitrogen, phosphorus and potash—may be effected.

Much work has been done on the effect of manures on the constitution of plants other than tea, and it has been shown by Schreiner and Skinner (*U. S. Dept. Agric. Bull., No.* 70) that each constituent of the perfect plant food mixture is absorbed by the plant in such a quantity that the balance of the original mixture is undisturbed. If any one of the constituents of the ideal mixture is increased, then the plant takes up more of this constituent and tends to reduce the residue to the perfect ratio. Any excess of one constituent is followed by an increased proportion in the plant. This has been shown with water cultures where the conditions are of the simplest.

Most of the work connected with the effect of manures on the constitution of plants growing in soil has been done on certain plant organs, more particularly with seeds. In these cases the variations were small and sometimes no greater than the variation shown by individual plants.

In tea we are concerned with the analysis of the flushing leaves of the bush, and this makes the problem different from that connected with an ultimate organ of a plant. The leaf is merely the seat of manufacture of the plant's food, and as such it should respond to small variations in the composition of the soil solution.

The work in connection with this question has been carried out during the year 1920 on tea seedlings and tea bushes.

SAND CULTURES.—The value of pot culture experiments has long been recognised by agricultural chemists, but the facts can only be used in connection with field work when local conditions are perfectly understood. With a sand culture the medium, although somewhat resembling a soil in its surface effect, is, from the chemical point of view, quite inert. The question of soil toxins, either organic or inorganic, does not arise. It has also been suggested that "live" soil contains substances with similar functions to those of vitamines, substances occurring in small quantities in fresh food, in the absence of which life cannot be supported no matter what the content of the food substance may be in carbohydrates, proteins, etc. Such substances, of course, are absent from pure sand.

Practically all the Assam soils are what is loosely termed "acidic," which property brings about unexpected results on the addition of manures. On some soils potash manures have a depressing effect on the crop, while phosphatic manures show an increase which is much greater than would be expected if the manure merely acted as a food. On other soils which are apparently the same, just the reverse action has been noticed. When we deal with sand cultures these questions, which are of much importance in the field, do not arise.

Betjan seeds were germinated on 3rd December, 1919, and were then transferred to acid-washed, ignited sand. On 15th March, 1920, when the seedlings were well established, the remainder of the, cotyledons was removed and nutrient solutions added. The strength of the solution was based on one suggested by Knoop:—

4 parts calcium nitrate, $Ca(NO_3)_2\,4H_2O$
1 part potassium nitrate, KNO_3
1 ,, ,, dihydrogen phosphate, KH_2PO_4
1 ,, magnesium sulphate, $MgSO_4\,7H_2O$
1 ,, ferric chloride, $FeCl_3$

added as 0·1 % solution.

If the moisture is 10% the sand gives the following analysis:—

Nitrogen as nitrate=8·7 pts. per million.
Water available potash=0·0012%.
Water available phosphoric acid=0·00077%.
Water available magnesia=0·00024%.

These figures are comparable with the values found in our soils.

For simplicity in calculation the solutions were made up from sodium nitrate, superphosphate, potassium and magnesium sulphate so that the same concentration of essential constituents as suggested by Knoop was obtained.

Twelve sets of experiments were started. In each set were nine seedlings, and the ratio of the three chief constituents—nitrogen, phosphorus and potash was varied.

Each day the cultures were weighed, and enough distilled water added to make the content up to 10%. After a period of nine weeks differences became apparent in the seedlings. Those receiving a high percentage of nitrogen were badly attacked by Brown blight. As the percentage of nitrogen decreased the colour of the leaves became lighter till with a high percentage of phosphate the colour was a light yellow.

On 6th August fresh manure was added and the moisture content brought from 10 to 15% The seedlings at once became stronger and those which were banjhi began to send out new shoots. This fact is interesting for, from theoretical considerations, the lower water content should be the optimum,

On 15th October the seedlings were uprooted, dried and analysed for nitrogen, potash and phosphoric acid. The table below gives the result of these analyses together with the number of plants alive when the experiment finished and the total weight of the dried plants.

The results obtained may be summarised as follows:—

(1) GROWTH.—The most vigorous seedlings, as judged by the weight of the crop, are those receiving manures rich in potash. The least vigorous are those receiving a manure rich in nitrogen.

(2) NITROGEN CONTENT.—There is apparently no relationship between the nitrogen content of the whole plant and that of the manure. The richer the manure is in nitrogen the more liable is the plant to Brown blight attack.

(3) PHOSPHATIC CONTENT.—As the phosphatic content of the manure increases, so does that of the seedling.

(4) POTASH CONTENT.—The relationship between the potash content of the manure and that of the plant is not so simple as that connected with phosphates. The manure giving the highest potash content in the seedling is one containing a high potash and phosphate content and a low proportion of nitrogen. More work is necessary before anything definite can be stated in this connection.

During the year 1921 fresh seedlings will be grown and treated with various manures.

EXPERIMENTS WITH THE LEAVES OF TEA BUSHES.—Whereas with experiments on tea seedlings infinite care and trouble are necessary, work on bushes in the field is comparatively simple. A plot of 252 bushes was used for the experiments described below. Between each treated bush and each check bush was one untouched bush. Nitrogen was added in the form of dried blood, potash as chloride, and phosphate as superphosphate. The total manure added to each bush was based on the figure 90 lbs. per acre calculated on potash as K_2O, phosphate as P_2O_5, and nitrogen as N. Every possible variation containing two and three manures was employed, the amount of each constituent varying from 15 to 75 lbs. per acre. In all, twenty-five different mixtures were added.

Every seven days throughout the flushing period, leaves were plucked and dried. Regular plucking, two leaves and a bud was observed throughout. At the end of the season (1919) the analyses were made. In April, 1920, manures were added to the plots as before and the leaves were plucked throughout the season. The analyses will again be made.

The following deductions have been made :—

(*a*) NITROGEN.—The variation in the nitrogen content of different leaves is very great. It is well known that even in small plots, differences due to soil irregularities are greater than those due to manurial treatment. Only after comparing each value with that of the corresponding values of the check bushes can any relationship between manurial treatment and leaf constitution be observed.

The manures richest in potash produce leaves poorest in nitrogen. If excessive nitrogen renders a bush liable to blight attack, it seems highly probable that the beneficial effect of potash manures may depend on their power of reducing the nitrogen content.

In all cases except four, manuring appears to have increased the percentage of nitrogen. In two cases, both receiving manures rich in potash, there has been no change. But the differences everywhere are seen to be extremely small and almost negligible when the variation between individual bushes is considered. Probably now that a nitrogen value has been obtained for each bush, the second year's manuring will show a change compared with last year's individual value.

(*b*) PHOSPHATES.—There is apparently no definite relationship so far between phosphatic content of the manure and the leaf composition.

(*c*) POTASH.—No relationship between the potash content of the manures and that of the leaf can be seen after the first year's manuring.

Recent work at Pusa has shown that the nitrogen content of rice may be doubled by the addition of large doses—160 lbs. N per acre—of manure. Such quantities are of course impracticable in the field. Smaller doses have practically no effect on the constitution of the rice seed. It has been shown that the constitution of the mustard plant is not affected by manuring with such small doses as 15 lbs. per acre.

The problem with the tea bush is different in that we are dealing with a perennial, so that the effect of manure is cumulative. In many cases it will probably take several seasons to bring about any definite alteration in the constitution of the leaf by manuring.

(*I. T. A. Scientific Department Quarterly Journal*, Part 1. 1921.)

LETTERS TO THE EDITOR.

(The Planters' Chronicle is not responsible for the opinion of its Correspondents.)

The Executive Committee.

Dear Sir,—I trust some District Association will bring forward a resolution at the General Meeting of the U. P. A. S. I. to be held next month to have rule V altered.

This rule at present reads :—

> " The election of the Executive Committee shall be by ballot representatives of each industry, to be elected by the votes of the area under the corresponding product only."

The Executive Committee's recommendation in 1919 was :—

> " The election of the Executive Committee shall be by ballot," and this, I think, is how the rule should read.

It is surely wrong that members are not allowed to have a say in the appointment of all the men who are to be in charge of their money, and conduct the Association from year to year.

At present I believe one District Association has the majority of rubber votes, and can elect its own representative to the Executive Committee. The same may happen with regard to Tea and Coffee.

The Articles of Association say that the Executive Committee shall be constituted as follows :—

> "Three nominated representatives of the District Associations shall be elected by the General Committee at the time of the Annual General Meeting of the Association as Active Members of the Executive Committee, one each to represent the interests of Tea, Rubber and Coffee, respectively."

I am quite aware that the General Committee can make, alter, and revoke rules for carrying on the business of the Association so long as these rules are not repugnant to the Memorandum and Articles of Association, and, I would ask, is not a rule which so drastically curtails the voting power of the members repugnant to the Articles ? Obviously, if the rule is to be kept in force, the Articles of Association must be altered.

Yours, etc.
FACT.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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EDITORIAL NOTES

This Issue.

This issue is largely taken up with official matter, reports of Planters' Association Meetings, the Agenda, Secretary's Report, etc., taking up rather more than their usual quota of space. We are particularly pleased to have another letter from "Interested," "A Ticket-holder," and Mr. A. S. Dandison.

Earl Haig's Fund.

The *Madras Mail* has opened its columns to this Fund which will, we hope, meet with much better response than would so far appear to be the case in the Madras Presidency. Attention is drawn to the publication in this issue of the minutes of the last meeting of the Madras Corresponding Branch. The Honorary Secretary, Capt. H. F. Tasker Taylor, in a letter to the Secretary, U. P. A. S. I., hopes that all planters will be made aware of this Branch, and we have thought the best means of so doing would be publication in the Chronicle. Capt. Tasker Taylor's address is the Madras Club, Madras, and he will be glad to get into touch with ex-service planters who desire to communicate with him.

Messrs. Harrisons & Crosfield, Ltd.

We have received from Mr. Mackie a copy of the brochure issued by Messrs. Harrisons & Crosfield in connection with the Rubber Exhibition recently held at home. The brochure is very neatly got up, and contains a mass of useful information regarding Rubber, Tea, and in fact, Tropical Produce generally.

Pale Blanket Crepe.

In the "India Rubber Journal" to hand by the Mail, Dr. Philip Schidrowitz says : "I have over and over again referred to the fact that a certain quality of pale thick blanket crepe is "short" on the market, and that such goods can command a premium. Nevertheless, the situation in this regard continues. A producer to whom I mentioned the subject the other day said, "How did the Manufacturers get on before this grade was made ?" I might have replied that the argument underlying this question, if extended, would suggest that the whole plantation industry was *de trop*. As a matter of fact the coming into existence of new grades has led to the manufacture of a variety of goods which could not be made at all with the older rubbers. Mr. A. starts to make a certain line with a new grade ; it is highly successful and his customers clamour for more. Then he finds that the market is short. What next ? "

The Rubber Market.

Prices in New York in Mail week sank to the extraordinary low level of 12 cents for smoked sheet on the spot. "Macson" in the "India Rubber Journal" says that America being the largest consumer of rubber, unless improvement in its rubber trade coincides very closely with improving conditions as expressed by a more normal exchange rate, such conditions will react very adversely upon the London stocks.

Malayalam Rubber and Produce.

The rubber crop harvested for the year ended 31st December last amounted to 1,853,366 lb. The cost of production f. o. b. (excluding loss on exchange, 7'68d. per lb.) was 1s. 0'32d. per lb., compared with 11'06d. per lb. for 1919, the average net price realised being 1s. 2'89d. per lb., against 1s. 10'92d. per lb. The board have agreed to restrict the company's output in accordance with the R. G A. scheme. Proposals have been made for the reconstruction of the company, with a view to providing the capital which has been overspent upon the development of the estates and for working and other capital requirements.

Central Travancore.

The result of the year's working to 31st December, 1920, was a loss of £14,246, as against a balance of profit £ 8,236 brought forward from the previous year. Apart from the fall in prices of rubber and tea, abnormal conditions which should not be recurrent contributed largely to the loss on the year's working. The rubber crop collected, after deducting loss in weight in transit, was 287,368 lb , the highest crop yet secured from the estates. A substantial part of the crop was still unsold. The realisation of the rubber stock carried over from the previous year resulted in a loss of £1,340. The gross average price of the rubber appeared at 11'31d. per lb., and the "all-in" cost of production, allowing for loss in exchange, worked out at 1s. 1'33d. per lb. The actual crop of tea collected was 162,048 lbs., the gross average price realised being 7'15d. per lb , against an "all-in" cost of production of 1s. 1'33d. per lb. In view of the difficulties of arranging finance, the depressed state of the rubber industry, and the probability of a substantial loss in working, the directors decided to suspend tapping operations in the rubber area for the current year, in the hope that the position would improve and operations could be resumed on a profitable basis. The tea area was being continued in full operation.

CENTRAL TRAVANCORE PLANTERS' ASSOCIATION, PEERMADE.

MINUTES OF THE FIRST QUARTERLY GENERAL MEETING OF THIS ASSOCIATION, HELD ON SATURDAY, JULY 2ND, 1921, AT 10 A. M. AT THE HOSPITAL, PEERMADE.

PRESENT.—Messrs. J. A. Richardson, H. C. Westaway, J. M. Wilkie, A. V. Mawer, C. Ricketts, G. S. Napier Ford, J. F. Fraser, and A. R. St. George (Honorary Secretary.)

In the absence of Mr. E. C. Sylvester, Mr. Fraser proposed and Mr. Richardson seconded that Mr. Westaway be asked to take the chair.

Mr. Westaway accordingly took the chair.

The Honorary Secretary read the notice calling the meeting.

1. Minutes of the Annual General Meeting, held on 30th April, 1921, were taken as read and confirmed.

2. CORRESPONDENCE :—

(a) Read letter from Deputy Director of Agriculture, Planting Districts.

(b) Read letter from General Secretary, the Travancore Sambavar Sangham.

(c) Read letter from the Principal, St. George's Homes, Kodaikanal.

The Honorary Secretary informed the Meeting that with the consent of the Committee, a donation of Rs. 150 had been sent. This was confirmed.

(d) Read letter from Mr. E. C. Sylvester *re*. the condition of the Cumbum-Kuruvanuth Road. It was proposed that Mr. J. A. Richardson should bring in an interpellation at the council regarding same, and the Honorary Secretary was instructed to write to him accordingly.

3. BANGALORE DELEGATES .—Mr. Richardson proposed, and Mr. Fraser seconded "that our delegates to the Bangalore Meeting be Messrs. E. C. Sylvester and A. R. St. George." Carried.

4. U. P. A. S. I. AGENDA AND INSTRUCTIONS TO DELEGATES.—The Agenda was examined, and the delegates duly instructed on the various items of the U. P. A. S. I. Agenda of interest to this Association. The following resolutions were passed : proposed by Mr. Ricketts and seconded by Mr. Wilkie "that Messrs. Spencer & Co., Ltd. should be approached to give the arranged discount under the U. B. A. at their branch in Quilon, as this branch is used extensively by Peermade Planters, etc., and further that the Club stores is used as a branch by residents of Peermade and Vandiperiyar who are not members of the Club, for all stores and liquors."

Proposed by Mr. Fraser and seconded by Mr. Ford "that Government be once more approached concerning the very bad condition of the Uthmapalayam-Kuruvanuth Road."

Proposed by Mr. A. V. Mawer and seconded by Mr. Ford " that this Association are of opinion that circulars should be issued by the Publicity Board, in the Vernacular, pointing out the hardships and distress caused to labour by the work of Agitators."

5. WAR MEMORIAL.—The Honorary Secretary informed the Meeting that the brass tablet had now been erected in the Church, and that the balance money in hand was Rs.597-2-0. This amount he was instructed to hand over to Mr. Westaway, who, together with the Church Committee, would arrange about putting in brass Altar rails in the Church, as already decided at a previous Meeting.

6. REGISTRATION OF CARTS.—Read letter from the Commissioner, Devicolam enclosing copy of letter dated 1-11-20 from the Honorary Secretary, West Coast Planters' Association. The Honorary Secretary was instructed to write to the Commissioner, Devicolam, supporting the W. C. P. Association on the subject.

7. L. A. N. I. & P. B. FUND.—The Honorary Secretary informed the Meeting that he had received subscriptions from five members amounting to Rs. 100 for the L. A. N. I., and that subscriptions from nine members amounting to Rs. 135 had been sent to the P. B. Fund for the current year. He hoped more subscriptions would be forthcoming. The Honorary Secretary was instructed to write to the Secretary, L. A. N. I. asking for new rules and prospectus, if any, of the amalgamated scheme.

8. TIMBER VALUES.—The Minutes of the last conference with the Dewan on the 12th May were read, and after discussion, it was proposed by Mr. Napier Ford and seconded by Mr. Fraser, that Mr. Richardson and Mr. Westaway should interview Mr. Thannu Pillay, Asst. Conservator of Forests, Peermade, at the earliest possible date. Carried.

9. PLUCKING.—Read letters from Mr. E. C. Sylvester, dated 22-6-21, and Mr. R. J. McMullin, dated 28-6-21. It was resolved " that 3 pies per pound be the maximum rate paid for actual leaf plucked."

10. It was decided to hold the next C. T. P. A. Meeting on Saturday 8th October, 1921, at the Travellers' Bungalow, Peermade, and the Annual Road Committee Meeting on Saturday, 10th September, 1921 at Stagbrook Bungalow.

11. Mr. Napier Ford proposed, and Mr. Ricketts seconded that Mr. J. M. Wilkie be elected to serve on the Committee in place of Mr. J. H. Cantlay, who has gone home on leave.

With a vote of thanks to the Chair, the Meeting terminated.

(Signed) H. C. WESTAWAY,
Chairman.

(Signed) A. R. ST. GEORGE,
Honorary Secretary.

SOUTH MYSORE PLANTERS' ASSOCIATION.

PROCEEDINGS OF A GENERAL MEETING, HELD AT THE TRAVELLERS' BUNGALOW, SAKLASPUR, ON 30-6-21.

PRESENT:—Messrs C. Lake (President), T. Anderson, C. C. Couchman, Col. W. L. Crawford, D. S. O., Messrs. A. Durham, F. M. Hamilton, P. Hunt, Capt. E. M. Nixon, Messrs. E. W. Rutherford, E. H. Young, and Major A. L. Hill, O. B. E., M. C. (Honorary Secretary).

The Notice calling the Meeting was read.

(i) Minutes:—The Minutes of the previous Meeting were confirmed.

(ii) Rules and Articles of Association of the S. M. P. A.:—The Report of the Sub-Committee appointed to alter and amend these was discussed in detail, and was adopted.

(iii) Subscriptions to the Association:—It was decided that the half-yearly subscriptions should in future be due on 1st of June and 1st of December, of each year.

The following resolution, proposed by Mr. E. H. Young and seconded by Mr. C. C. Couchman, was carried:—"That members be circularised, requesting them to revise their planted areas under coffee and to bring them up-to-date."

(iv) Standard Rice Issue:—The proposal that a rice issue of 400 tolas to the rupee should be made standard was not agreed to.

(v) Manure Shed at Hassan:—A plan of the land that the Railway Authorities were prepared to grant in the Hassan Station, and the conditions under which it would be granted and a building allowed to be erected on it were laid before the Meeting. The site and terms were agreed to, and a Sub-Committee consisting of Mr. T. Anderson and Colonel W. L. Crawford, D. S. O. was appointed to make out plans for a store building to cost not more than Rs. 2,500. The Honorary Secretary was instructed to send out a circular informing members of the proposals and asking them to subscribe As. 8 per acre which would be called for in instalments only when it became necessary.

A vote of thanks to Colonel W. L. Crawford, D. S. O., for his successful efforts to obtain a suitable site from the Railway Authorities was passed.

(vi). Auxiliary Force (India) Unit Formation.—The nomination of Mr. Morgan, M. C., of the Coorg Planters' Association was agreed to, with an expression of thanks to him for taking up the appointment.

(vii) Amendment of Act XIII of 1859.—The intention of the Mysore Government to amend Act XIII of 1859 in accordance with the recent amendments in British India was recorded.

(viii) Hassan-Saklaspur Mails.—The request to the Postmaster-General, Madras, to have the Hassan-Saklaspur mails carried on the motor-bus service instead of on the jatka service, as at present, is still under consideration. The Honorary Secretary was instructed to send a further reminder to the Postmaster-General.

(ix) Election of Delegates to the U. P. A. S. I. Annual General Meeting.

The following were elected :—

Messrs. C. H. Godfrey, C. Lake, and A. L. Hill.

(x) Economies at U. P. A. S. I. Head-quarters.—The Delegates to the U. P. A. S. I., Annual General Meeting were instructed to do all in their power to reduce the U. P. A. S. I. expenditure, and to urge that, before any rise in subscription is sanctioned, all possible economies, particularly at U. P. A. S. I. Head-quarters, should be effected. They were also instructed to take up the matter of the rent of the Rubber Mycologist's bungalow.

(xi) Anamallai Planters' Association's proposal to alter the U. P. A. S. I. Articles of Association.—The following resolution, proposed by Mr. F. M. Hamilton and seconded by Mr. E. W. Rutherford, was carried :—"That this Association considers that Numbers 6 (a) and 13 (b) of the U. P. A. S. I. Articles of Association should remain unaltered."

The Honorary Secretary was instructed to communicate this resolution to the Mundakayam Planters' Association and to the U. P. A. S. I.

(xii) Election of Delegates to the Dusserah Assembly.—Mr. C. Lake was elected to represent the Association at the Dusserah Session of the Representative Assembly.

(xiii) Roads.—Correspondence with the Executive Engineer, Hassan Division, *re.* the bad state of various roads in the District was read, and the following resolution, proposed by Mr. E. H. Young, and seconded by Mr. E. W. Rutherford, was carried :—"That the Honorary Secretary writes to the Executive Engineer, Hassan Division, pointing out the very unsatisfactory condition of the Bikkodu-Belur and Ballupeta-Kerodi Roads."

(xiv) U. P. A. S. I. Representative on the Mysore Chamber of Commerce Managing Committee.—The Honorary Secretary was instructed to point out to the Secretary, U. P. A. S. I., that the U. P. A. S. I. Representative on the Managing Committee of the Mysore Chamber of Commerce had not attended one of the seven meetings of that Committee during the year 1920-21.

(xv) Election of a New Member.—Mr. E. H. F. Ramsay, of Hoolbully Estate having applied for membership, was duly elected a member of the S. M. P. A.

(xvi) Statistics :—A letter from Mr. C. H. Godfrey, pointing out the apparent uselessness of certain statistics a request for which had been received by some members, and asking that enquiries might be made as to the origin and purpose of the request, was read. The Honorary Secretary was instructed to write to the Deputy Commissioner of the District accordingly.

With a vote of thanks to the Chair, the Meeting ended.

(Signed) C. LAKE, President

(Signed) A. L. HILL, Honorary Secretary.

SHEVAROY PLANTERS' ASSOCIATION.

PROCEEDINGS OF THE EXTRAORDINARY GENERAL MEETING OF THE
MEMBERS OF THE SHEVAROY PLANTERS' ASSOCIATION,
HELD ON THE 5TH JULY, 1921, AT 2 P. M.,
AT THE VICTORIA ROOMS, YERCAUD.

PRESENT.—Mrs. F. D. H. Short, Mrs. C. G. Lechler, Mrs. Gaitskell, Messrs. V. L. Travers-Drapes, Honorary Secretary and Chairman, W. Rahm, C. Rahm, H. S. Dickins, C. L. Hight, S. M. Hight, C. D. Ryle, and Rev. Father C. Studer.

1. Notice calling the meeting was taken as read.

2. Read and confirmed the proceedings of the last Committee Meeting, dated the 16th June, 1921, at 4 p. m.

3. ELECTION OF DELEGATES.—Proposed by Mr. S. M. Hight and seconded by Mr. H. S. Dickins, that Mr. V. L. Travers Drapes (Honorary Secretary) and Mr. C. D. Ryle be elected as delegates to attend the U. P. A. S. I. General Meeting to be held on the 22nd August, 1921, at Bangalore. Carried unanimously.

4. Resolved the following be included in the U. P. A. S. I. Agenda in August:—That, in view of the persistent recruiting by a neighbouring Planting District of labour from the Shevaroys, a Byelaw be embodied in the existing Inter-District Labour Rules, preventing such recruiting by Districts affiliated to the U. P. A. S. I., or any member or his appointed Agent in this or other Planting districts. Carried unanimously.

5. JOINT OFFICE OF THE CHAIRMAN AND HONORARY SECRETARY,—Proposed by Mr. H. S. Dickins and seconded by Mr. C. D. Ryle, that Mr. S. M. Hight be elected Chairman of this Association till the termination of the current financial year. Carried unanimously.

(Signed) V. L TRAVERS-DRAPES,

Chairman and Honorary Secretary.

WYNAAD PLANTERS' ASSOCIATION.

PROCEEDINGS OF AN ORDINARY GENERAL MEETING, HELD AT THE MEPPADI CLUB, ON 6TH JULY, 1921, AT 2 P. M.

PRESENT.—Messrs. C. E. Abbott (Chairman), H. Cuthell, B. M. Behr, C. E. C. Walker, B. D. Darkin, H. C. Davies, W. Morres, H. C. Leslie, W. G. Craig, T. P. Gauld, P. Achard, P. A. Naylor, S. H. Powell, C. R. Charsley, B. Malcolm, and J. A. Gwynne, Honorary Secretary

VISITORS.—Messrs. A. C. Hankin, C. S. I., C. I. E. and R. Fowke.

Proceedings of last meeting were taken as read.

LOCAL ADMINISTRATION.—Letters from Mr. J. A. Richardson, M. L. C., were read as also the correspondence between Mr. F. J. Richards, I. C. S., and Mr. Richardson. It was resolved that Mr. Richardson be asked to, if possible, get the figures which are stated in the correspondence to prove the impracticability of the establishment of a separate District Board for Wynaad.

GANJAM LABOUR.—Letter from the Secretary, U. P. A. S. I. was read, and in answer to the question as to this Association's reasons for asking that this scheme should be controlled by a Committee of subscribers, it was decided to reply as follows:—

This Association considers that the investors in this scheme should have the control. For example, not long ago help was wanted by one of the biggest investing parties in Sirdhari recruiting, but the general body decided, for no apparently sound reason, that no help should be given. The suggestion of a separate executive committee for this scheme had the warm approval of Mr. Waddington.

S. I. P. B. FUND:—Mr. Hudson's letter regarding the method of collecting the subscriptions for this Fund was read and recorded. The Honorary Secretary was asked to write to him on the point brought forward.

RATES OF COOLIES' PAY AND RICE ISSUE:—Letters from Messrs. Barber and Pascoe, Harrisons & Crosfield, Ltd., and B. Malcolm, Esqr., Panora Tea Company, Ltd., approving of the proposed reduction in the rates of coolies' pay were read. The question of decreasing the rates brought up the question as to who was responsible for the increase in pay. It was decided to leave the discussion of this latter question to the next meeting after further enquiries had been made. A Committee was appointed consisting of Messrs. W. Morres, B. Malcolm, and the Honorary Secretary to go fully into the matter of the possibility of reductions after the expiry of existing contracts, and to draw up a schedule of rates of pay and allowances, and to submit the same to a future meeting.

U. P. A. S. I. AGENDA.—This was discussed in Committee when the Delegates received instructions for the Annual Meeting.

ACT I OF 1903.—G. O. No. 585 of 14th June containing the reports of the Collectors of Malabar and the Nilgiris was submitted to the meeting. It was noted with satisfaction that the reports were favourable on the working of the Act by Planters, and that the work of the Police was also approved of.

With a vote of thanks to the Chair, the Meeting terminated.

(Signed) C. E. ABBOTT,
Chairman.
(„) J. A. GWYNNE,
Honorary Secretary.

THE UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA (Incorporated).

Notice is hereby given that the Twenty-eighth Ordinary General Meeting of the Members of the above named Association will be held at the Mayo Hall, Bangalore, on Monday the 22nd day of August, 1921, commencing at 2-30 o'clock of the afternoon, and continuing on the following days for the purpose of receiving the Report of the Executive Committee, Accounts and Balance Sheet, electing a Chairman and Auditors for the ensuing year, and special business as set forth in the statement of Agenda printed hereunder.

By Order of the Executive Committee.
(Signed) C. H. BROCK,
Secretary.

15th July, 1921.

AGENDA.

ORDINARY BUSINESS.

1. The Chairman's Address.
2. Report of the Executive Committee.
3. Accounts—1st April, 1920 to 31st March, 1921.
4. Election of Chairman and Auditors.

THE U. P. A. S. I.

OFFICIAL BUSINESS.

5. Articles of Association.
    - (a) Amendment of Article 6.
    - (b) Amendment of Article 7.
6. Incorporation of District Associations.
7. Inter-District Sports.
8. "Planters' Chronicle"
9. South Indian Planters' Benevolent Fund.
10. Upasi Buying Agency.
11. U. P. A. S. I. Rules.
12. Affiliated Associations.
    - (a) South Indian Association.
    - (b) Indian Tea Association.
    - (c) Tea Cess Committee.
    - (d) Rubber Growers' Association.
    - (e) S. I. Nursing Association.

LEGISLATION.

13. The Planting Member.
14. The Reformed Councils and Politics.

15. The Factory Act Amendment Bill.
16. Labour Laws.
17. Malabar Tenants Improvement Act.
18. DUTIES AND TAXES.

COMMUNICATIONS.

19. Harbours.
20. Railways.
21. Roads.
22. Shipping.

LABOUR DEPARTMENT.

23. The Director's Report.
24. International Labour Conference.
25. Labour Rules, amendment of

GENERAL.

26. Labour Rates of pay.
27. Rice issue to coolies on Estates.
28. Statistics.
29. Auxiliary Force, India.
30. Medical.
31. Manures.

TEA.

32. Restriction of Output.
33. Markets.
34. RUBBER.—Restriction of Output.
35. COFFEE.—Weekly Cable of prices.

SCIENTIFIC.

36. Report of Deputy Director of Agriculture, Planting Districts.
37. General Mycologist.
38. Rubber Mycologist.
39. BUDGET AND FINANCE.

THE SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT NO. 6.

1. The Deputy Director of Agriculture, Planting Districts, finished his inspection of the Rubber Experiment Station at Tenmalai on the 9th, and proceeded to Florence Estate. The Rubber Station has been divided into suitable plots, and a cropping scheme decided upon. This will be drawn up in detail at an early date, and the first tapping will be begun on 1st September. Mr. Anstead, after a brief visit to Quilon, will return to head-quarters on 15th July.

2. I have read the interesting article on coffee shade in the "Planters' Chronicle," of 2nd July, and quite agree with the author in what he says about the closeness of planting. That is a mistake which has been made over and over again, and it is a mistake difficult to rectify, owing to the danger of root disease following the removal of shade trees and the temporary letting in of borer. The point which should be aimed at is the minimum number of shade trees per acre to provide the necessary shade, and the encouragement of each individual tree to produce as large and spreading a canopy as possible. A good deal more might be done in this direction.

I am not prepared, however, to agree with him in his advice to leave original jungle trees as shade. There are several disadvantages in this. Jungle trees when isolated are apt to become unhealthy and die, they are often old and too big and high, causing the coffee under them to suffer from the effects of drip, which does a lot of harm, and finally the shade they produce is apt to be too high up. They are difficult to remove after the coffee has been established, not only on account of the damage done to the coffee in breakage, but the danger of after effects of root disease.

A much better way of restoring the loss of organic matter due to a clean felling and burn is to plant, in addition to the permanent shade which should be properly lined and spaced, temporary shade and a green dressing. These supply mulch and organic matter quickly while the permanent shade is growing up, keep down the weeding bill, and are easily controlled and removed at any time. For temporary shade *Erythrina lithosperma* (Dadap) is hard to beat. It supplies a lot of mulch because it grows quickly and can be lopped frequently, mulch rich in organic matter and nitrogen, and it is very easily grown, controlled and removed when the time comes. For a green dressing beneath this many plants can be used: various species of *Crotalaria* and *Cassia hirsuta* will probably be found the best. The seed should be sown broadcast with the early rains before the monsoon, at about ten pounds per acre seed rate, and then given one or two selective weedings, the coolies being taught to remove weeds and leave the green dressing plants. In this way it is soon established, and during the monsoon protects the soil from erosion, and keeps down other weeds. At the end of the monsoon it can be cut over, and the loppings used as a mulch. This lopping can be done again before crop, and finally in the beginning of the dry weather it can be removed and dug in, to be resown with the next rains. In young clearings it can be buried with advantage with an application of slaked lime and phosphate for the first two or three years, until the coffee roots begin to meet between the rows and digging cuts them, when the process must be stopped. By this time the permanent shade is established, and the temporary shade can be thinned out, leading up to its final removal altogether. In this way the shade is regulated from the very start.

Two tiers of permanent shade should be aimed at, and a mixture is preferable to a pure culture of all one kind. As a whole, species of *ficus* are not advisable. In some districts it is true coffee grows very well under certain kinds of *ficus* trees, but in districts quite near the same species is harmful. The reason for this I do not know. The chief objection to *ficus* trees is that they are apt to get too large, and are then very difficult to remove, and many of them are notorious for producing root diseases when killed.

(Signed) RUDOLPH. D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts,

9-vii—21.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore,
12th July, 1921.

SECRETARY'S REPORT No. 26.

1. ANNUAL MEETING—AGENDA.—The Shevaroy Planters' Association have given notice that they will move the following resolution at the Annual General Meeting:—

> "That, in view of the persistent recruiting by a Neighbouring
> "Planting District of labour from the Shevaroys, a Bye-law be
> "embodied in the existing Inter-District Labour Rules, prevent-
> "ing such recruiting by Districts affiliated to the U. P. A. S. I.
> "or any Member or his appointed Agent in this or other Planting
> "Districts."

The Executive Committee have decided to include the item "Labour Rates of Pay" in the Agenda for the Annual General Meeting. This is in special reference to the recommendations of the South Indian Association in London, the full text of which will be found in the Report of the Executive Committee, which will be printed and circulated shortly.

2. ANNUAL MEETING.—Dr. Leslie Coleman, M. A., Ph. D., Director of Agriculture, Mysore State, has kindly consented to give an address at the Annual Meeting in August, provided his health permits.

3. COCHIN HARBOUR.—Mr. J. A. Richardson, M. L. C., attended the Meeting of the Cochin Harbour Committee, held on the 27th ultimo, as representative of the U. P. A. S. I. In the course of a confidential Report forwarded to the Executive Committee he says:—

"Altogether prospects look much brighter for the harbour scheme."

4. UPASI BUYING AGENCY.—I am glad to be able to report that there are now over 100 members who have joined this Agency, and that Members are making full use of it.

(Signed) C. H. BROCK,
Ag. Secretary.

Madras Corresponding Branch, Earl Haig's Fund.

A MEETING OF THE SURVIVORS WAS HELD AT THE MOUNT ROAD PREMISES OF THE IMPERIAL BANK OF INDIA, ON MONDAY, FEBRUARY 28TH, 1921.

Lt.-Col. T. H. Symons, O. B. E., I. M. S, was voted to the chair. It was resolved:—

(*a*) That the annual subscription be Rs. 10.

(*b*) That in addition, members be invited to subscribe to a fund to be used entirely for the relief of necessitous ex-service men.

(*c*) That the Honorary Secretary be authorised to accept subscriptions under both heads.

The following Committee was elected:—

Col. A. H. Morin, D. S. O., V. D.
Lt.-Col. C. L. Magniac, C. M. G., O. B. E., R. E.
Lt.-Col T. H. Symons, O. B. E., I. M. S.
Major W. Lamb, V. D.
Major R. E. Wright, I. M. S.
Capt. C. G. Alexander.
The Chaplain, Fort St. George, Madras.

During the absence from India of the undersigned, Capt. H. Tasker Tayler, M. C., has consented to act as Honorary Secretary and Treasurer.

W. H. H. JOHNSTON, LT.-COL.,
Honorary Secretary, Madras Survivors,
Madras Club.

Owing to continuous post office thefts, cheques should be made out to the undersigned and crossed 'payee only,' and a receipt should be requested if not received within seven days.

H. F. TASKER TAYLER, CAPT.,
Ag. Honorary Secretary, Madras Survivors,
Madras Club.

The Lady Ampthill Nurses Institute
AND THE
South Indian Nursing Association.

In the "Planters' Chronicle," dated 16th April last, page 259, the Secretary published a note with reference to these two Associations, and it will be remembered that it was notified that the U. P. A. S. I. would give as its nominees (who will have all the benefits and privileges of members, with the exception of the right to vote) the names of all those planters who were planting in Southern India, and who were members, or employees of members, of a District Association affiliated to the U. P. A. S. I., at the time they joined up for service.

It was then stated that there were 99 or 100 of such planters who comply with the above conditions.

The original list in the U. P. A. Office has not been revised for nearly two years, and it is known that some of the planters, whose names were on the original list, are no longer in India.

A provisional list of all the members who are entitled to the privileges of the Nursing Associations is given below, but it is probable that there are some errors and omissions in it.

This list is published for the purpose of ascertaining if any of those in the list are not qualified, and also if any planters who do comply with the conditions laid down have been omitted.

All planters are requested to look through this list carefully, and if anyone notices anything in it that requires amending, he is requested to write and point out the errors to the Acting Secretary, U. P. A. S. I., Coimbatore, who will revise it accordingly. Eligible planters who are temporarily out of India, or out of work, should be included. Honorary Secretaries of District Associations are also requested to give their assistance in this revision.

(Signed) A. H. BROCK,
8th July, 1921 Acting Secretary.

PROVISIONAL LIST.

Agor, G. W. S.
Alexander, T. P. M.
Aylmer, G. A. T.
Bennet, L. G.
Blackett, B. J.
Blackham, J. C.
Brock, C. H.
Browne, C. E. M.
Browne, H
Campbell, P. G.
Cantley, J. H.
Cotton, A. C.
Crawford, W. L.
Darkin, B. D.
Davies, H. C.
Dickinson, W. E.
Dixon, A. H. B.
Dixson, W. J.
Drummond, J. Deane.
Duncan, E. W.
Dunning, A. G. A.
Egerton, W.
Ewart, C. E. A.
Farley, G. P.
Farr, E. T. C.
Forbes, W. E.
Forbes, T. C.
Ford, G. S. Napier.
Fremlin, R. W.
Fulcher, G. W.
Gouldsburry, C. P.
Grove, A. S. L.
Hammond, H. J. C.
Harper, K. J.
Haslam, R. E.
Hedger, R. W. O.
Hill, A. L.
Holder, G. A.
House, E. N.
Inman, W. F.
Johnson, E.
Kinlock, A. P.
Kirwan, L. E.
Kirwan, N. G. B.
Koechlin, M. C.
Lescher, R.
Lister, C. E. L.
Lodge, A. P. D.
Mackenzie, C. A.
Maurice, J. O. P.
McLean, C. L.
Meade, R. S. De C.
Miller, F. G.
Mitchell, C. H.
Moffat, J.
Morgan, J. S. H.
Murphy, J. J.
Nicolls, A. E. J.
Oliver, T. W.
Olney, C. K.
Parker, H. R. C.
Renking, W. L.
Reid, C. A.
Reilly, S. C. O.
Ross, K. M.
Rossier, R. P.
Sampson, J. E.
Shore, M. F.
Simmons, F.
Simpson, J.
St. George, A. R.
Stonehewer, E. H.
Sullivan. J. H. B.
Sylvester, E. C.
Tait, R.
Trutwein, S. R.
Walmesley, H.
Waters, W.
Wyer, O. J. E.
Young, E.

On Brown Bast and its Immediate Cause.

BY J. B. FARMER AND A. S. HORNE.

Brown Bast is unfortunately too well-known to planters and others interested in the rubber-planting industry to need any description, either of its symptoms or of its evil consequences. But hitherto it has defied attempts to discover its cause, or to correlate it with definite functional disturbance in the tree.

The object of the present communication is to record briefly the results of investigations conducted by us which, as we believe, serve to place the immediate cause of the disease beyond doubt, and this is the first essential step towards its effective check.

The disease has been attributed to a variety of agents, but the views most commonly entertained are that it is either caused by bacteria, or that it is due to some ill-defined physiological disturbance of the normal functions within the tree.

In this connection it may be noted that nothing whatever is really known either as to the function of latex in the tree, or of its relation to the nutritive processes which are going on during healthy growth. It is not likely that the caoutchouc is of value to the plant, but it may be taken as fairly certain that other ingredients in the latex are of real nutritive use to the tree. Furthermore, in tapping not only the latex tubes are severed and exposed, but a continual injury is inevitably (but not necessarily harmfully) inflicted on another conducting system of cells, known as "sieve tubes." These latter are essential structures in the bark of all healthy plants, and their primary functions are, among others, to provide for the circulation of the nitrogenous food without which no plant can satisfactorily carry on. If these important sieve tubes become diseased, from any cause whatever, the whole organism suffers.

Some months ago one of us received a consignment of specimens from an estate in the East, with a request to report on the nature of the trouble which was affecting the trees from which the specimens were taken. The material was carefully selected and excellently preserved, and the symptoms pointed clearly to an attack of Brown Bast

Microscopic examination showed that the sieve tubes in the affected trees were all characterised by a peculiar degeneration of the walls, such as would prevent them discharging their proper functions. The walls were altered in character and discoloured. Unless care be taken it is easy to misinterpret the whole appearance, but the use of appropriate reagents conclusively proved that the disease was really one involving the vital sieve tubes, and was not the result of changes in walls surrounding intercellular spaces.

In order to be certain that the disease in question was really Brown Bast, renewed investigation was made of authentic material from the Federated Malay States, with the result that precisely similar pathological symptoms were readily detected in the last-named material, whilst they were entirely absent from healthy trees.

In the younger layers of the bark the disease is confined exclusively to the sieve tubes, but in the middle and outer regions the discoloured areas are larger owing to the fact that other cells, parenchyma, medullary rays, laticiferous vessels, all become involved in the local tissue-degeneration. Incipient stages of the well-known Burr formation have been observed. These burrs are due to the activity of specially formed wound cambium which arises in connection with the diseased laticiferous tissue, and in this way patches of necrotic cells become enclosed in a pocket of stone cells.

A feature of interest and importance was exhibited by a specimen of bark from a diseased tree which had not been tapped for a long time, owing to the burr formation having rendered this impossible till the bark was stripped. While the outer sieve tubes, had all degenerated, the youngest ones were healthy, and the tree appeared to be recovering, in so far as the sieve tube apparatus was concerned, and this is in accordance with expectation based on experience in the plantations.

It is, of course, not possible as yet to suggest a rough and ready cure for the evil; practical experience, however, has shown that in most cases the damage is ameliorated by stripping or scraping. Furthermore, it is not safe to generalise too widely, and to say that tapping in excess is the sole cause of the disease. Rubber is planted in various situations, and is exposed to a variety of climatic, soil, water, and other conditions, and it seems certain that some or all of these may predispose trees to disease, especially when their normal life is interfered with by the process of tapping.

It is clearly of urgent importance that physiological investigations should be undertaken on the spot by plant physiologists of *first rate* ability. Problems in plant physiology are usually difficult to solve, and none but first rate men ought to be entrusted with them.

We may remark, in conclusion, that specimens of microscopic sections, stained and mounted, together with drawings and explanatory diagrams, were shown by us in the Rubber Growers' Association's exhibit in the International Rubber Exhibition. A full account of the investigation, and of the methods employed, will be published later.—(*India Rubber Journal*).

LETTERS TO THE EDITOR.

(*The Planters' Chronicle is not responsible for the opinion of its Correspondents.*)

The U. P. A. S. I. Buying Agency.

I.

Sir,—Being the culprit who started the idea of a "Fantastic Concern," (*vide* "Interested's" letter in your issue of the 2nd instant), like the above, I feel it is up to me to reply.

"Interested" must bear in mind that U. P. A. S. I. membership is varied, and its activities must be comprehensive enough to suit all requirements if Unity is ever to be achieved.

He considers that the "surplus" power of UPASI officials should be devoted to the Labour Department and not to a Buying Agency, and, while I fully endorse the desirability for a well run Department, there are other points that have to be considered, the chief one being Finance.

Now, the words "Labour Department" are anathema to many, and if these cannot obtain compensating advantages, they will not join the U. P. A. S. I., or will clear out of it as the case may be on the first opportunity, and their Subs lost.

The Mundakayam Mycologist Station was the compensating advantage to certain rubber interests, and unless I am hopelessly wrong, the Buying Agency will be the means of keeping in the Association many small estates, whose representatives at present complain they get no *tangible* returns for their subscriptions.

"Interested" states that similar discounts and terms of payment can be got by most estates. Possibly so for estate requirements, if they are divisions of a large company, but the small company and small owner generally has to pay "List Prices."

As regards the utility of the Agency generally for the Planters' private needs, surely this is too obvious to need elaborating here, and if Planters care to pay full prices for these when the U. P. A. S. I. has the power to obtain discounts for them, well, it is their own funeral.

There is one point I would like to emphasise, and that is there is no intention whatever to get up a "show" in opposition to Coast Firms. It is an attempt to help the small man, so that the small man will help himself, and the Association by either joining, or remaining a member, and it is also intended to reduce the cost of living to those who now pay full prices for stores and private requirements.

The fact that several Coast Firms have now expressed their willingness to allow discounts is proof of the co-operation between them and the "U. B. A."

Regarding membership, there is no secrecy, as figures have been published, and I believe that the 100 mark is being rapidly approached. This does not mean that only 100 people are using it, as a man will buy for his wife and family, so probably 150 users would not be a wild guess, and membership is increasing.

Possibly "Interested" is unaware that the discount system has been used by the N. P. A. for some time to a limited extent, and why an extension of this, for the benefit of all UPASI members who desire it, should be called a fantastic concern, I fail to see. I would refer "Interested" to the proceedings of the 1912 UPASI Annual Meeting, page 52, 1st para, and will conclude by saying that I know one member of the N. P. A. who, by taking advantage of these discounts, practically covered the whole of his U. P. A. S. I. Sub, thus getting the full benefits of the latter for practically nothing.

Yours faithfully,
A. S. DANDISON.

II.

Dear Sir,—With reference to your notes on my letter published in the "Chronicle" of 2nd inst. you say there is precedent for this Upasi Buying Agency, but surely it is a stretch of imagination to say that Section 3 (1) and (2) of the Memorandum of Association covers the action of the Association in this matter.

I am glad to hear that some "Firms who are members" are likely to get a bit of their own back through this Agency. I am afraid the estates are not to benefit much however.

With regard to statistics I decline to believe that Planters will not give figures if asked to. They may delay a bit, but if the Association would take a little trouble and keep at them they will get all the figures they require. It is absurd to think otherwise, the Planter must know the value of figures as well as anyone else, and although he may be a bit slack in attending promptly to matters outside his usual routine, he, I am sure, would readily furnish the Association with his acreage yields, etc., if the Association would go the right way about it.

And let me tell you, Mr. Editor, it would not require so very much labour on the part of the Association officials to elaborate the figures as you appear to think. A short time of a clerk and a *little* supervision on the part of one of the Association's officials would soon put them in order, and once set agoing there would be no trouble in keeping them up to date.

Certainly, it is high time we were up and doing something in this important matter. I believe one of the difficulties in tackling the present rubber position is the lack of reliable data as to acreage yield, stocks, etc.

Yours,
INTERESTED.

III.

Sir,—"Interested's" letter on the above subject, in this week's "Chronicle" must be a surprise to many of your readers; and, I think, is to be regretted.

"Interested" asks what authority the U. P. A. S. I. have in starting such an Agency, and I would refer him to the Memorandum of Association of the U. P. A. S. I., No. 3, (1), which reads as follows:—

> "to promote and protect in all parts of the world the interests of the various planting industries carried on in Southern India."

Through the Agency, the estates of which the owner or manager is a member of the Agency are to receive undoubted benefits from certain firms in Southern India, and this list of firms, in all probability, can be largely increased. If this is not promoting and protecting the interests of the industries, what is?

As the Acting Secretary of the U. P. A. S. I. has already pointed out, the cry against the U. P. A. S. I. in the past, from many, has been, "What does the U. P. A. S. I. do for me?" Here is an answer to the question, and, most will admit, a satisfactory one.

"Interested" claims that the efforts of the employers of the U. P. A. S. I. might be better employed with labour and other matters, and I would point out that the idea of the annual subscription of Rs. 10 is for the purpose of clerical staff, etc.; and that, therefore, it would appear obvious that the U. P. A. S. I. clerical staff is not be interfered with.

"Interested" states that the Agency has been subscribed to by only a few, and in a half-hearted way. One is accustomed to this half-hearted policy in all matters, in the only planting district of which I have knowledge; but the fact that support is not general is not sufficient to damn a scheme to inaugurate which the best heads of the Planting Industry have been engaged.

If "Interested" does not desire to partake of the benefits of Agency, he, like all of us, is at liberty to refrain from subscribing to it. But why write a letter that is likely to prevent many of the younger men, who naturally wait to see "which way the wind is blowing," from joining, and so missing benefits which must be admitted?

I trust "Interested's" letter will merely be the means of making as many as possible join, in order to show that the usual half-hearted policy, so harmful to many schemes, is dispensed with in this case.

Yours faithfully,
"A TICKET-HOLDER."

WANTED.

Billet wanted by Planter of thorough experience as Superintendent of Tea, Rubber or Coffee Estate, has excellent testimonials and references.

No. 104,
c/o "Planters' Chronicle."

Billet by young Planter, well experienced in Tea, Coffee, Rubber and Cardamoms. Good with Labour. Fluent knowledge of Tamil, Malayalam and Hindustani. Can join at once. Highest References.

Apply:—"LOYALTY,"
c/o "Planters' Chronicle."

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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HELOPELTIS AND ITS RELATIVES.

With reference to my article on Tea Helopeltis, I have received specimens from the Deputy Director of Agriculture, Planting Districts, establishing the fact that *Helopeltis theivora* exists in South India—a point about which, as I stated, there has been some doubt. I should be grateful for specimens from all Tea Estates which suffer from this pest. I will send stamped and addressed tubes for this purpose to any one asking for them.

A few notes on *Helopeltis theivora* and its allies may not be without interest.

Helopeltis belongs to a family of insects known as the *Capsidae* which is again divided into two main groups, distinctly separated from one another by a certain formation of the head, the names of which we need not bother about, but it is of interest to note that species of one group often very closely resemble species of the other. *Helopeltis*, for instance, is very like another insect known as *Disphinctus* in general appearance, and there are many other instances of this sort of resemblance.

All Capsids are plant feeders, and many are well known pests of crops. They feed by sucking up plant juices either from stems, twigs or fruit. As in the case of all Hemiptera, (which includes all the "bugs" proper) food is drawn up through a proboscis which is thrust into the tissues of the plant (or animal) upon which it preys. Many plants when attacked by

Capsids in large numbers, that is when they are in pest condition, show a characteristic withering and shutting up. To what this is exactly due is not known. It is almost certainly not due entirely to the loss of sap by the plant affected. It may be due to Enzymes secreted during the act of feeding, or it may be due to bacteria which either enter into the plant through the wound made by the insect's proboscis, or else may possibly be injected directly through the proboscis, after the manner of the injection of the malarial parasite into man. The whole question of transmission of plant diseases due to micro-organisms by insects is still in its infancy. Such disease transmission may be of much more usual occurrence than is suspected at present. To return to the Capsidae, they all lay their eggs in plant tissue, some of these eggs are adorned with one or two tags at the end, which is left sticking out of the stem, twig or fruit in which the egg is laid. Eggs are not always thrust right into the tissue of the plant, for in the case of Calocoris angustatus, at times a serious pest of cholam, they are laid inside the glumes in bunches, and although the female Calocoris is provided with a long trenchant ovipositor suitable for piercing stems, it is simply used for parting the glumes of the cholam florets. Female Capsids all possess a more or less powerful ovipositor, carried folded up under the abdomen, but when in use it is lowered and used to pierce the tissue in which eggs are to be laid. This ovipositor is usually a scimitar shaped structure, sometimes more than half the length of the insects' abdomen.

Capsids being insects without a metamorphosis, there is little difference between the just hatched young and the adult, except that the adult is provided with wings and sometimes, as for instance in Helopeltis, with a horn-like structure on the back. There are sometimes a few slight differences in colour, but on the whole the young Capsid resembles its parents, and is not a totally different looking animal from its parents, as a caterpillar differs from a butterfly.

Capsids moult or change their skin five times before becoming adult: after the second moult the rudiments of wings are to be seen which grow more and more with each successive moult. In their immature wingless stages, all Hemiptera are known as "nymphs." After the last moult they take a few days to become sexually mature, and then begin coupling and egg laying. The female sometimes lives for a fortnight, perhaps for a longer time in nature, but the male generally dies soon after copulation. The total life from egg to adult is rather over three weeks or five to six weeks in all, in such members of the group as have been studied in South India. Many Capsids, besides, being plant feeders feed on Aphids, Mites, and other small insects. In captivity they will attack one another, especially if one is already injured. Those with carnivorous tastes which have been under observation at Coimbatore, do not appear to be totally dependent on animal food, although in one case it rather seemed as though a diet of plant lice was necessary as well as plant food to induce one species to begin egg laying.

Helopeltis theivora does not differ from other members of the Capsidae in the main scheme of its life history. Eggs are laid in the stem, and Andrews reports that they will lay in the broken ends of plucked twigs, a common habit amonght Capsids. A single female may lay many hundreds of eggs, so that once a garden is infected with mosquito blight increase of the pest will be rapid. The eggs of Helopeltis are provided with two tags, as in the case of so many other species of the sub-group to which Helopeltis belongs. *Helopeltis theivora* has a near relation in *H. antonii*, which is responsible for the wilting of nîm trees. This fact was discovered by the Assistant Entomologist, M. R. Ry. Rao Sahib Y. Ramachandra Rao in 1914, and additional proof that this insect is responsible is given by the fact that a long line of trees at Coimbatore has been kept free from the wilting for a year, as the result of weekly spraying with a contact insecticide which killed the Helopeltis nymphs. To turn now to treatment of Helopeltis, before any of Andrews' interesting experiments can be applied to South India, comparison of the soil of infected and non-infected estates will have to be made; for it by no means follows that Helopeltis will yield to the same treatment as in Assam, and a good deal of other preliminary investigations will be necessary. At the same time, I would again ask for specimens from all estates infected with mosquito blight.

E. BALLARD,
Government Entomologist.

THE SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT NO. 8.

1. The Deputy Director of Agriculture, Planting Districts, returned to head-quarters from Quilon on 15th July. The Rubber Mycologist proceeded to his head-quarters at Mundakayam on 12th July. Letters should be addressed to him at:—

The Mycological Station,
Mundakayam P. O.,
Travancore State,

and, as mentioned in Report No. 5, all enquiries and specimens relating to *rubber diseases* should be sent direct to him. Matters relating to manuring, etc., will still be dealt with by Mr. Anstead.

2. In these times of low rubber and tea prices, we are often asked for advice as to a temporary crop which will bring in dividends. This is difficult to find or suggest, but it seems to us that reserves in jungle might be looked to. It is economically unsound in theory to cut down large areas of jungle and burn them, as has been done in the past, and now that there is no prospect of the immediate planting of more land there is an opportunity of exploiting these reserves. Many of the estate reserves must contain valuable forest products, which at this time are worth attention. Wild cardamoms, pepper, beeswax, gums, resins, canes, myrobolams, all occur to us at once, besides the possibilities of fancy timber, and possibly fibres and oils. Some of these products, if they can be obtained cheaply, stand at remunerative prices just now. Beeswax is worth 8 annas to Re. 1 per lb; Kapok, 5 annas per lb; Myrobolams about 1 anna per lb; Citronella oil, Re. 1 per lb: Eucalyptus oil, Rs. 1-8-0 per lb., and so on. The following prices of timber, taken from the "Indian Forester," appear to us also to be worth the attention of the planter with reserve jungles at his command, more especially if he is contemplating stopping tapping and wondering what to do with his labour force.

Lagerstroemia flos-reginae ...	Rs. 115 per ton.
Lagerstroemia microcaspa ...	Rs. 3 per cubic foot.
Mango logs ...	12 annas per cubic foot.
Terminalia tomentosa (rough) ...	Rs. 1-4-0 per cubic foot.
Terminalia catappa ...	Rs. 105 per ton.
Dipterocarpus indicus (Danmar) ...	Rs. 2 per cubic foot.
Diospyros Ebenum (Ebony) ...	£ 15 per ton.
Albizzia lebbek ...	10 annas per cubic foot.
Bombax malabaricum ...	Rs. 2-6-0 per cubic foot.
Cedrela ...	Rs. 80 per ton.
Calophyllum ...	Rs. 1-12-0 per cubic foot.

All these trees are common in our jungles in South India, and there are many others which are worth attention and enquiry.

3. The Imperial Institute recently pointed out that the oil obtained from the seeds of *Bombax malabaricum*, our common silk cotton tree, was quite as good as that from the Java Kapok, *Eriodendron anfractuosum*. The seed of the latter was fetching about £ 15 per ton in London at the end of 1920.

4. The above is merely put forward as a suggestion, but we feel that the jungle holds many valuable products besides timber; medicinal plants, fibres, gums, resins, canes, etc., which are worthy of a better fate than the fire, and that this is perhaps a suitable time to investigate some of these. The Scientific Department will be glad to do all they can to help in this matter and to have samples identified and valued.

(Signed) RUDOLPH. D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.
18—vii—21.

[*Note* by Ed., P. C.—In connection with Mr. Anstead's remarks above, we draw the attention of our readers to the review on another page of "Report on Timbers and Paper Materials."]

INDIAN TIMBERS AND PAPER MATERIALS

Enquiries into the possibility of increasing the utilisation of Indian timbers in this country and of making use of Indian paper materials have been carried out in connection with the Indian Trade Enquiry undertaken by the Committee for India of the Imperial Institute, and the reports have just appeared in a volume published by Mr. John Murray under the title "Reports on Timbers and Paper Materials," (price 4s.)

Hitherto the exports of timber (other than teak) from India have been relatively small, owing chiefly to the existence of a large local demand. It is considered, however, that there would be an opening for an extended export trade to the United Kingdom in certain hardwoods, which would be of value for decorative and other purposes, and are at present little known in this country. The characters and uses of a number of such timbers are described.

In the section on paper materials, a general statement is given as to the world's pulp and paper-making industry, special reference being made to the position in India. Details are included as to the possibility of utilising Indian bamboos and savannah grasses for paper-making, and the opinion is expressed that in these two materials India possesses valuable resources, which occur under circumstances not unfavourable for their commercial development. It is considered that the immediate aim in the development of an Indian paper-pulp industry, which should receive every encouragement from the Government of India, should be to reduce, and finally to replace (as far as possible) by Indian supplies, the large amount of pulp and paper imported into that country. It is believed that the replacement of imports by Indian produce would be quickly followed by a surplus production, which would be available for export.

NILGIRI-WYNAAD PLANTERS' ASSOCIATION.

PROCEEDINGS OF THE THIRD ANNUAL GENERAL MEETING, HELD AT GUDALUR ON MONDAY, 4TH JULY, 1921, AT 11-30 A.M.

PRESENT.—Messrs. J. S. Nicolls (Chairman), J. Aird (Vice Chairman), R. Fowke, A. F. Dalley J. E. Bisset, G. W. Fulcher, J. B. Adkins, B. J. Blackett, J. W. H. Bradshaw, L. Garrett, and F. W. F. Fletcher (Honorary Secretary).

BY PROXY.—Messrs. J. H. Wapshare and W. B. de Courcy.

VISITORS.—Messrs. Minchin, Hay, Stevenson and Bentley.

The Proceedings of the last Meeting having been confirmed, the Chairman called on the Honorary Secretary to present his report. Mr. Fletcher said:—" Mr. Chairman and Gentlemen:—The following report deals with the period from 1st April, 1920 to 31st March, 1921.

" MEMBERSHIP AND ACREAGE.—The number of estates on our books at the close of the year was 17, the same figure as last season, while the number of members was 16, the difference being accounted for by the fact that in one instance two Estates have the same representative. I am glad to say that, in addition, we have now three personal members. I would again appeal to the Chic Dhorays on the large concerns to join. The subscription for a personal member is only Rs. 12, and this small annual payment carries a vote. Our Indian fellow planters still hold aloof. I can only express the hope that the spirit of co-operation which is now abroad in the land will make itself manifest in planting matters as well as in the wider sphere of politics, and that they will join us during the year which has just begun. Some one has said that it needs a surgical operation to drive a joke into a Scotsman. That is a libel: but apparently it needs something more drastic even than trepanning to drive the necessity for co-operation into the consciousness of the planter. If the crisis through which we have passed, and the still gloomy outlook, do not make us realise that the only remedy is to pull together, we must be past redemption.

" The subscribing acreage rose to 12,012 acres, as compared with 11,637 acres last year, the increase being due to tea extensions on several estates. This total is made up thus:—

	Acres
Tea	7,140
Rubber	315
Coffee	4,557
Total ...	12,012

"Here I may say that I have received revised figures from all Estates for the year beginning from 1st April, 1921. In respect of tea, two Estates have increased their acreage by 28 acres, while one Estate shows a decrease of 10 acres. In respect of coffee, three Estates have decreased their figures by a total of 85 acres, while 40 new acres have come in. For the current year I have taken all decimals as whole numbers. The nett result is a decrease of 26 acres in the total subscribing acreage, which, from 1st April, will stand at 11,986 acres. One Estate will, I believe, plant up about 500 acres during the coming monsoon, but that increase will not be brought into account till next season.

"MEETINGS.—Four Meetings were held during the year, the average attendance being 10, which is a considerable improvement on last year. The success of an Association like ours hinges entirely on the interest taken in it by members, and the acid test of that interest is their attendance at Meetings. As I said last year, with our low membership our Meetings can never be imposing numerically, but I hope—and this appeal is chiefly to the address of those members who did not attend a single Meeting during the year—to see fuller Meetings this season.

"FINANCE.—The accounts I now submit cover the full year from 1st April, 1920, to 31st March, 1921. They have been audited in the Chairman's office, and found to be correct, and I lay them on the table. The balance in hand at end of last year was Rs. 411, and the receipts for the year amounted to Rs. 1,739 4-4, making a total income of Rs. 2,150-4-4. The expenditure for the year under all heads was Rs. 881-14-4, leaving a balance of Rs. 1,268-6-0 to be carried forward. Of this balance, Rs. 500 is on fixed deposit with the Imperial Bank of India, earning 5%. There are only two items in the accounts which call for special comment. One is that the receipts include a sum of Rs. 500, representing the profit on grain transactions last year, which was handed over to the Association by the Emergency Committee in the most magnanimous way—an unexpected windfall which will not come our way again. The other is that of the total expenditure of Rs. 881 odd: Rs. 517 odd represent the travelling expenses paid to members for attending the Committee Meetings at Coimbatore and the Annual Meeting at Bangalore. From what I have said, you will see that our financial position is very satisfactory. With the accounts I have filed an estimate of income and expenditure for the current year, which shows a credit balance of Rs. 1 255-15-0. Our present subscription of 1½ annas per acre will, therefore, provide us with ample funds.

"REVIEW. COFFEE.—The crop in this District was a fairly good one, and it ripened up more quickly and evenly than I can ever remember a crop doing before, which made harvesting a difficult matter. Unluckily for those Estates which were short of labour, heavy rain fell in the middle of January, and I expect all coffee men had considerably more "gleaning" to do than they relished. Home advices early in the year led us to expect phenomenal prices for our crop—better even than the high prices which ruled last season. I fear that expectation will not be realised, but there has been a big drop in freight, while exchange remains at an abnormally low level, and these factors will in a large measure counter-balance the drop in prices. In my part of the District one small shower in the middle of March brought out a grand blossom: if the coming crop fulfils this promise, prospects are excellent. But there was a long rainless spell after blossom opened, and it remains to be seen what effect this will ultimately have on crop. Farther East, blossom did not open till the middle of April.

"TEA.—The year opened with rosy prospects. Nothing foreshadowed the 'slump' which came with such startling suddenness—a slump which will always mark 1920-21 as the blackest year in the tea man's calendar. The primary cause seems to have been the enormous quantity of low grade teas sent home by planters, in their eagerness to avail themselves of the flat rate paid when sale was under control. Without warning, these teas were thrown on the home market by the Food Controller, with the inevitable result that prices dropped to a figure under cost of production. I need not dwell on the steps taken at this end to minimise the evil effects of the slump—they are fresh in all our memories: but if we take to heart the lesson our bitter experience has taught us, and in future aim at quality rather than quantity, out of evil will come good. The recent trade agreement with Russia has again opened that market, nominally at least, to our teas. Time alone can show what relief this will afford the overstocked market at home.

"COMPENSATION FOR IMPROVEMENTS ACT.—Some months ago Government published the draft of a bill to extend this Act to the Nilgiri-Wynaad, which will shortly come before the Legislative Council. It will, I know, be a source of gratification to all members that our efforts to secure this urgently needed measure of relief have at long last borne fruit. Some additions will be necessary, if existing properties are to reap any benefit from the extension of the Act to our District: these have been pointed out to the Planting Member, to whom our thanks are due for the trouble he has taken on our behalf.

"FOOD SUPPLY AND PRICES:—Making every allowance for the rise in cost of living everywhere, the prices of all food grains are still abnormally high, which can only be due to the profiteering we are powerless to combat. It is, however, a satisfaction to know that we are no longer menaced by a scarcity of food supply for our labour. The last harvest in Mysore, on which State we are dependent, was a good one, and seasonable rains have fallen this year. We can only hope that, sooner or later, prices will come down to their proper level.

"INCORPORATION.—I presume the Memorandum and Articles of Association have been submitted to Government. The completion of this long-standing matter rests entirely with the Secretary of the U. P. A. S. I. I have provided a sum of Rs. 200 to meet the probable cost.

"LAND ON COWLE.—As you know, the Association has been granted a considerable extent of land on cowle tenure in Cherambadi and Pundalur, on condition that it is planted with food grains. These blocks were handed over too late last year to allow of any work being done, but I trust that the Estates in the neighbourhood will arrange to plant up at least a portion with ragi and rice. If another year is allowed to pass without an effort being made to utilise the land for the purpose for which it was granted to us, it will certainly be resumed by Government, and it would be a grave pity if we lost this valuable concession through our own supineness. We are entitled to apply for land up to 1,000 acres, so far, only 336 acres have been taken up. If any other members wish for land in the vicinity of their Estates, I would ask them to furnish me with the necessary details.

"MOTOR SERVICE TO CALICUT.—I have, from time to time at our Meetings, stated the progress made in my correspondence with the Walford Company in regard to a service of motor lorries between Gudalur and Calicut. In the middle of April their Managing Director, Captain Walford, paid a short visit to the District, and I had an interview with him. Naturally, in discussing a scheme which would mean a large outlay to his Company, he was cautious, but the impression I brought away from the interview was that he was disposed to regard my proposal favourably, and that he considered the estimate of traffic I had given him (based on figures supplied by our members) sufficient to make a motor service remunerative. Captain Walford gave me a series of questions to reply to, and my answers were sent in at once. I have now received from him a definite proposal, but I need not go into details here as this will be discussed in course of this Meeting. Personally, I have not a scintilla of hope that anyone sitting at this table will live to see the proposed railway through our District to Shoranur become an accomplished fact, and a motor service would be an inestimable boon. From our standpoint, everything, of course, depends upon the rate at which our produce would be carried, but I think we would all be willing to pay more—considerably more than the cart rate, to rid ourselves for good of the trouble and loss, both of time and produce, we suffer every year by being compelled to depend solely on cart transport. I see no reason why the cost of transport by motor should be prohibitively high. Recently a motor lorry was run up the Anamallai Ghaut, (a far more formidable one than the Tamaraseri Ghaut), by Messrs. Massey & Co., and the actual running cost worked out at 5·1 anna per ton mile. This included an allowance of no less than 25% for depreciation, which seems to me an unduly high figure.

"I have now touched on all matters of special interest to our Association which have come on the *tapis* during the past year, and with these remarks I beg to tender my resignation of my office as Honorary Secretary."

The Chairman then delivered the following address:—

Gentlemen:—This is our third Annual Meeting, and completes my third consecutive year as your Chairman. It seems to me that the number three should be my lucky number, as I was Honorary Secretary of the N.I.A. for three consecutive years, Chairman of that Association for three consecutive years, and Chairman of the United Planters' Association for three consecutive years also. Instead of "lucky", I might more appropriately have said "favoured." I look at this record, gentlemen, as a 'Success,' of which I may be justly proud and one on which I can now retire into a more secluded life.

YOUR HON. SECRETARY in his Report has covered the work of the year, and explained to you our financial situation. He has left me little to say but to join with you in recording him a very hearty vote of thanks for his work during the past year, and I sincerely hope you will be able to persuade him to continue to be your Hon. Secretary for another year and to watch over the Association, of which he justly holds the right of being called "Father". Mr. Fletcher was its originator.

OWNERS OF TEA ESTATES have had to face dark days, although we wait in trustful longing that, as regards tea, the worst is behind us. We can but realize that our struggle against adversity is still an actuality. "Supply and Demand" are controlling factors, and there is no good to be gained by looking back to pre-war statistics. At the present moment the supply exceeds the demand, and the buyer is in the position to pick and choose. The Tea Planter can cut down "Supply" by finer plucking. I admit it means an increased cost of production, but the increased selling price undoubtedly compensates one for that. The Planter who looks at it from the other view, that, if he can only bring down his cost of production by obtaining an increased yield by freer plucking, that it will place him in a position to meet present depressed values for common teas, is not only nourishing destruction for himself, but is imperilling the future of the Tea industry as a whole. Ceylon has recognized what the industry is up against, and I congratulate my "Alma Mater" on the prices she is procuring for her teas. Can we, in S. India, do as well as Ceylon as regards prices? I do not hesitate in saying we can. Daverashola elevation is 3,300 feet. If I want to compare my prices with those of Ceylon, I look for those of one of the Estates I was on in the Dickoya District. So far, gentlemen, the comparison has been comforting to me.

I think we might have expected the Indian Government to try and help to save the Tea Industry. We asked for the withdrawal of the export duty on tea, which we all looked on as a war measure. Our petition was rejected. Perhaps the Indian Government do not realize the seriousness of the position. I pray it will not be long before her eyes are opened, and may it not then be too late. If a great part of the acreage of tea now planted in India had to be abandoned, it would not only bring ruination to an investing public, but its effects on the Empire's economics would be disastrous.

OWNERS OF COFFEE ESTATES.—I think I have not had much to complain of, either as regards crop procured or prices obtained. Although at the present moment home buyers seem not keen to buy freely, I hope that in the coming season good crops and prices will be procured.

TO YOU WHO ARE INTERESTED IN RUBBER.—I sympathize with the dark days through which you have already passed, and the great fight that still lies before you. Before anyone of you can expect the clouds to lift and days of prosperity to return. Again here, the crux of the trouble is "Supply and Demand". I think a likely answer is "World Depression," and not that the available annual supply is beyond the world's capabilities of consumption. The visible stocks of rubber in the world is now estimated at about 70,000 tons less than one-quarter of the world's consumption in 1919 and 1920. But I think, in estimating the visible Raw Rubber Stocks of the world, one must not overlook that stocks of manufactured articles, such as motor tyres, are an adjunct to those stock figures.

Truth recently gave an estimate showing the population per motor vehicles registered in nine countries. They are interesting, and should give Rubber Planters hope. The number given for the United States is 13, which stands first, the last of the nine being Japan, 15,000. There is no doubt room for expansion in motor traction.

MALABAR COMPENSATION FOR TENANT IMPROVEMENT ACT.—Your Honorary Secretary has touched on this in his report. As the matter of the extension of the Act to the Nilgiri-Wynaad is "sub-judice," I will refrain from making any statement now, but when it comes up for discussion during the meeting I will, in Committee, give you the results of Mr. Richardson's and my recent interview with Government.

FOOD SUPPLY AND PRICES.—As you, no doubt, are aware, I am "President of the Emergency Committee" of this Taluk, and have been so since the import of grain from Mysore into this Taluk was controlled. From February 1919 to February 1920, I worked it on a scheme of direct personal purchases "the necessary funds being found privately." Since when, it has been worked by authorizing merchants and others to import direct. The Committee are informed weekly of the selling prices in the Gundulpet Markets. Authorized merchants' profits are based "on a fixed scale." If the market prices submitted to us by the Amildar of Gundulpet are to be relied upon, I for one would not accuse local merchants of profiteering. There may be occasions where an authorized merchant violates the terms of his agreement with the Emergency Committee. But so far no case has been brought to my notice.

I shall welcome the day when Mysore throws open its door, and I think this Association should ask that control be withdrawn.

DISTRICT BOARD MEMBER.—As you know, I have been an unofficial member of the Board for this District for 12 years. At the termination of my last three years, Mr. Bryant, the then President of the Board, asked me if I would accept office for another three years. I agreed to do so. Not seeing myself gazetted, I wrote pointing this out to Mr. Bryant, but received no reply. I think, in the interest of this District, a Planting Member should be appointed. It may be a coincidence, but in my opinion, when there was a member of this District on the Board, our roads seemed to have much more attention paid to them than they are now receiving. I would especially draw your attention to the Wexford Bridge on the Gudalur-Nellakotta road. It is only a small bridge I am afraid to say how long it has been down. I hear we are not to see it rebuilt for another six months at least. Eighteen months to two years to rebuild a small bridge must be somewhere near a record. It the water way becomes blocked by the remnants of the old revetments, a heavy monsoon burst in July will witness the washing away of the road on the Nellakotta side of the bridge. I do not know what allotment was given for repairs to the Gudalur-Nellakotta road, but I feel certain that if something is not done quickly the allotment will elapse before the financial year ends. If so, gentlemen, we have a very serious grievance, and I hope the Association will call for an explanation. Having no District Member of the Board, we received no intimation that the tolls on motor cars were to be increased 100 per cent. It is a big jump from eight annas to one rupee. What it means ? I am situated 38 miles from Ooty. The amount I have to pay on tolls alone in going there means one anna three pies per mile, and we are getting nothing for it. Judging from the present condition of our road, we are likely to get less.

HOOKWORM (Dr. Paul's Propaganda on Daverashola Estate).—You will no doubt like to know my opinion as to results obtained. They have been more than satisfactory. The improvement in the health of the coolies treated by Dr. Paul is most noticeable. I am continuing his treatment. All new arrivals showing any outward signs of the disease receive immediate treatment. Does the cooly believe in it ? There is no doubt that he does. A great number of them, of their own accord, ask for some of "Dr. Paul's Medicine." I shall be interested to hear the opinion of any other member of this Association who has treated patients for Hookworm on his Estate.

Gentlemen, this is the last time I shall have the honour of addressing you as your Chairman. I have done all I could for your interests and the interests of planters in general since I first engaged in planting politics.

I thank you all for the courtesy you have always shown to me. To Mr. Fletcher, your Hon. Secretary. I wish to record my sincere appreciation of the able manner he has dealt with the work of this Association during the past year.

(Signed) J. S. NICOLLS,
Chairman.

Daverashola Estate,
30th June, 1921.

ELECTION OF OFFICE-BEARERS.—The following gentlemen were elected for 1921-22:—

Chairman	Mr. J. Aird.
Vice-Chairman	Mr. R. Fowke.
Committee	Messrs. Fulcher, Garrett, and J. E. Bisset.
Honorary Secretary	Mr. F. W. F. Fletcher.
U. P. A. S. I. General Committee ...	Messrs. Aird and Fowke.
Delegate to UPASI Annual Meeting ...	Messrs. Aird and Fowke.

Mr. Aird said :—Gentlemen, I tender you my sincere thanks for the honour you have done me in unanimously electing me as your Chairman, and I assure you that I will do all in my power to further your interests in every way I can. Mr. Fletcher also thanked the Meeting for having again elected him as Honorary Secretary. He said he had been three years in office, and would have preferred to hand over the reins to someone else this year, not because he grudged the time and trouble the Association's work entailed on him, but because he thought it a mistake that the office of Honorary Secretary should become the monopoly of any one member. However, as the Association evidently considered he could still be of service, he would carry on the work for another year, and would do his best, as he always had done, to advance its interests.

Mr. Aird, having taken the Chair, proposed a very hearty vote of thanks to Mr. Nicolls for his services in the double capacity of Chairman and President of the Emergency Committee, and to Mr. Fletcher for his work as Honorary Secretary. This was carried with acclamation.

COMPENSATION FOR TENANTS' IMPROVEMENTS ACT.—This subject was discussed in Committee, and Mr. Nicolls gave the meeting a *resume* of his recent interview with Government. Messrs. Nicolls and Fletcher, who will represent the Association at the further interview with Government on the 11th inst, were empowered to use their discretion in arriving at a settlement, if that is possible.

MOTOR SERVICE TO CALICUT.—The Honorary Secretary read a letter from Messrs. Walford & Co., suggesting the formation of a Transport Company, and offering to find half the capital required provided the other moiety was subscribed locally. The members present considered that this proposal was not feasible in view of the present depressed state of tea, and the Honorary Secretary was instructed to ask Messrs. Walford if they could not see their way to put up all the money required, especially as the figures of probable traffic, based on actuals rendered by the Estates belonging to the Association, promised a remunerative return on the capital as estimated by Messrs. Walford themselves.

EXPORT DUTY ON TEA.—Instructions were given to the delegates to the Annual Meeting on this point.

U. P. A. S. I. SUBSCRIPTION.—The Honorary Secretary read letter from the Secretary, U.P.A.S.I., No. 579, dated 17th May, 1921, giving the text of a resolution to be put forward by the Anamallai Planters' Association at the coming Annual Meeting, vesting the General Committee with power to raise the subscription as and when they deem necessary. A lengthy discussion followed, and the delegates were instructed to strongly oppose the resolution.

U. P. A. S. I. AGENDA FOR ANNUAL MEETING.—This was taken in detail, and instructions were given to the delegates on several points.

DISTRICT BOARD MEMBER.—Mr. Nicolls referred to his remarks on this head in his speech, and said he thought the Association ought to take the matter up. The members were unanimously of opinion that it was absolutely necessary that all planting districts should be represented on the Board, and the Honorary Secretary was instructed to address the President.

ROADS AND TOLLS.—Several members drew attention to the lamentable condition into which the roads in the District (including the main road to Calicut) had been allowed to lapse, owing to lack of proper work and supervision. The unanimous opinion of the Meeting was that the roads in the Nilgiri-Wynaad had never been in such bad order before. Apparently contracts for the current year, which should have been settled before 1st April, had not yet been given out in some instances. The Chairman considered the Association should protest against the enhancement of the toll for motors by 100%, which had been sprung upon the District without warning. The Honorary Secretary said that, though he was all in favour of such a protest, he feared it would not have much effect, as he had lately been in Coimbatore and Malabar, and tolls had been similarly raised in both these Districts. He was instructed to write to the President of the District Board on both points.

PLANTERS' BENEVOLENT FUND.—The Honorary Secretary read letter No. 333, dated 26th April, 1921 from the Secretary, U.P.A.S.I., and asked all members who were subscribers to the Fund to send in form B direct to the Secretary.

REDUCTION OF RATES OF PAY TO LABOUR.—This subject was brought forward by Mr. J. E. Bisset, and the following resolution proposed by him, and seconded by Mr. R. Fowke, was passed:—

> "That this Association approach all other Associations drawing labour from the same recruiting areas regarding the possibility of reducing the present rates of pay to a lower and uniform basis, and that a joint Committee of the Associations concerned be formed to go into the subject and formulate a practical scheme."

CORRESPONDENCE.—(1) Read letter from the Collector of the Nilgiris, No. 1787, dated 23rd April, 1921. The Honorary Secretary was instructed to inform the Collector of the reasons why the land has not been utilised, and to request that the time might be extended for another year.

(2) Read letter No. 762, dated 27th May, 1921 from the Secretary, U.P.A.S.I. with reference to the UPASI Buying Agency.

(3) Read letter No. 1303, dated 2nd June, 1921 from the Secretary, U. P. A. S. I. with reference to subscriptions. The Honorary Secretary said that the collection of these subscriptions was the one duty which irked him, and he would be glad to see it undertaken by the U. P. A. S. I. Office direct. Bills would be sent out as usual.

With a vote of thanks to the Chairman, the Meeting ended.

(Signed) J. AIRD,
Chairman.

(Signed) F. W. F. FLETCHER.
Honorary Secretary.

MUNDAKAYAM PLANTERS' ASSOCIATION.

MINUTES OF A GENERAL MEETING, HELD IN THE MUNDAKAYAM CLUB AT 2 P.M., ON SATURDAY THE 2ND JULY, 1921.

PRESENT.—Messrs. J. R. Vincent (Chairman); W. M. Stantan; M. F. Shore; F. G. Millar; G. A. Brooke; H. R. Carson Parker; R. Harley; C. L. McLean; and F. H. Moulton, (Honorary Secretary.)

1. ELECTION OF DELEGATE TO THE ANNUAL GENERAL MEETING OF THE U. P. A. S. I.—Owing to the inability of the proposed Delegates to attend the General Meeting to be held in August the meeting unanimously asked Mr. J. J. Murphy to represent the Association which he very kindly consented to do.

2. U. P. A. S. I. AGENDA, AND INSTRUCTIONS TO THE DELEGATE ATTENDING THE ANNUAL GENERAL MEETING.—The agenda was gone through item by item, and the Hon. Secretary was requested to inform the Delegate attending of the wishes of the Association.

3. CORRESPONDENCE.—The Hon. Secretary read a letter from the West Coast Planters' Association, forwarded to him by the District Magistrate, Devicolam, on the question of the Licensing of Carts in Malabar, Cochin and Travancore, and was requested to inform the District Magistrate that the Association desire to support the West Coast P. A. proposal, and also to point out that a representation to the same effect was made by our Delegate at the last Sri Mulam Popular Assembly.

4. LICENSES FOR CARS IN COCHIN STATE.—Mr. J. R. Vincent explained the existing conditions to the meeting, and the Hon. Secretary was requested to write to J. Mackey, Esq , Planting Member L. C , Travancore, pointing out that owing to the existing regulations in Cochin State motorists and motor vehicles in Cochin State are required to take out Car Possession and Drivers Licenses in that State, although they may be in possession of licenses issued by the Travancore Government, and suggesting that he request Government to move the Cochin State with a view to making the Travancore license cover travellers and vehicles in the Cochin State, and *vice-versa.*

With a hearty vote of thanks to the Chair, the meeting terminated.

(Signed) J. R. VINCENT,
Chairman.

(„) F. H. MOULTON,
Honorary Secretary.

RUBBER TRADE ASSOCIATION OF LONDON.

Monthly Statistics.

MAY, 1921.

Movements of all kinds of Rubber to and from the United Kingdom as per BOARD OF TRADE RETURNS.

IMPORTS.

From	April.			Four Months ended April.		
	1921.	1920.	1913.	1921.	1920.	1913.
Straits Settlements and F. M. S. ...	6,785	5,453	2,350	22,670	19,580	8,065
Ceylon and British India ...	1,751	1,889	559	8,398	9,502	2,417
Dutch East Indies, &c. ...	1,615	1,156	136	5,712	3,343	406
Brazil and Peru ...	71	619	2,221	923	2,611	8,265
Other Countries ...	117	368	1,822	419	993	6,453
Total Tons ...	10,339	9,485	7,088	38,122	36,029	25,606

EXPORTS.

To	April.			Four months ended April		
	1921.	1920.	1913.	1921.	1920.	1913.
United States of America ...	2,006	3,427	1,431	3,317	17,934	5,189
Canada ...	...	319	49	11	1,551	138
France ...	269	1,403	464	1,199	5,229	1,551
Belgium ...	36	446	208	243	1,233	669
Italy ...	101	591	8	364	1,444	65
Spain ...	6	44	1	52	66	25
Germany, Austria, Hungary ...	869	533	738	2,486	1,173	3,659
Russia ...	...	...	627	...	19	2,388
Sweden, Norway and Denmark ...	57	89	26	386	300	212
Other Countries in Europe ...	44	26	137	427	155	454
Other Extra European Countries...	1	90	72	21	320	232
Total Tons ...	3,389	6,968	3,761	8,506	29,424	14,582

LANDINGS, DELIVERIES and STOCKS in London and Liverpool as returned by the Warehouses and Wharves during the month of April.

		Landed for Apl.	Delivered for Apl.	Stocks 30th April.		
				1921.	1920.	1919.
LONDON ...	Plantation ...	8,302	3,450	68,365	21,332	18,371
	Other Grades...	...	6	394	540	504
LIVERPOOL...	Plantation ...	764†	150†	6,037†	1,301†	3,541†
	Para & Peruvian	270	330	1,062	774	1,080
	Other Grades.,	...	...	460	447	499
Totals London & Liverpool...		9,336	3,936	76,318	24,394	23,995

† Official Returns from the six recognised Public Warehouses.

Movements of all kinds of Rubber, excluding Gutta, Balata and Guayule, to and from the U. S. A. AS PER RETURNS OF THE UNITED STATES DEPARTMENT OF COMMERCE.

	February.			Two Months ended Feb.		
	1921.	1920.	1919.	1921.	1920.	1919.
IMPORTS ...	9,792	31,855	14,958	21,806	61,510	25,243
EXPORTS ...	322	65	135	841	317	220

RECEIPTS AT PARA.

	March.			Jan./March (3 months)		
	1921.	1920.	1919.	1921.	1920.	1919.
Rubber ...	1,122	2,210	2,520	4,698	7,890	8,725
Caucho ...	390	740	890	965	1,660	1,680
Total...	1,512	2,950	3,410	5,663	9,550	10,405

Estimated for April.	Rubber ...	1,200
	Caucho ...	350
		1,550

LETTERS TO THE EDITOR.

(The Planters' Chronicle is not responsible for the opinion of its Correspondents.)

The Labour Department and Statistics.

Dear Sir,—I note your remarks on my letter, and let me tell you Mr. Editor, that I am just as well aware of the functions of the Labour Department as you are, and your presumption that I meant benefits by "direct recruitment" is entirely wrong. I have had this same statement thrown at me time and again by the Labour officials, it appears to be their pet phrase when any comments on their Department are made.

Surely the Department is something more than a mere debt collecting society.

Coolies are what Estates require, and, although the Department is not asked to recruit directly, one of its duties is to help Planters to get in touch with new connections. Is this done? Are Planters satisfied?

Then, why is it necessary to cut down expenditure? Have Estates stopped subscribing? I did not think this was possible.

A certain amount of money was voted to the Labour Department at the beginning of the year by the Committee, sufficient, I take it, to carry on the Labour Department in what they considered an efficient manner. Where has all the money gone to? Surely there must have been something radically wrong with the Estimates.

I look forward to the Directors' Report, and now let me return to *Statistics.*

What is wanted to begin with is each estate's acreage and years of planting.

Each estate should then send in through its District Association a note of its monthly crop harvested.

It would be an advantage to have yearly estimates sent in at the beginning of each year, but some may object to disclosing these, and I think they can be dispensed with.

Shipments and the ports of destination are easily procurable independently of the Planter, from the officials at the different ports of shipment.

With this information the Association would be able to supply the Tea Cess Committee, the Rubber Growers' Association, and other such bodies with all the information they require, and would it not be of great interest to Planters generally to have such information tabulated yearly in the Association's Book of Proceedings.

A little energy, Mr. Editor, on the part of the officials, and the thing is done.

Yours,

INTERESTED.

The Executive Committee.

Dear Sir.—I quite agree with you, a straightforward election of the Executive Committee would pan out much as it does with each product electing its own man. This is exactly what I said on a previous occasion in another place, and all I want is to have a say in the appointment of the three men.

I don't know how the nomination of two men by each product would work, but why are not the men duly proposed and seconded for election at the meetings?

Sitting down with a slip of paper in front of you, and voting in cold blood for a man without knowing if he is to stand or not is most unsatisfactory.

If each man were proposed and seconded, and his qualifications for the post duly expounded on by his proposer and seconder, it would make the voting ever so much more simple and satisfactory.

If you like, why not make it essential that the Tea, Coffee and Rubber men should each be proposed and seconded by the members of committee representing the respective products, but let *all* the members of the General Committee vote.

Yours,
FACT.

U. P. A. S. I. Buying Agency.

Sir,—The letter from "Interested" in your last issue should not remain unanswered.

(1) He is dissatisfied with the Labour Department, and (2), thinks the energies of the U. P. A. S. I. officials should not be dissipated on a buying agency.

For every ten men who are satisfied that the Labour Department, alone, repays their U. P. A. S. I. subscription (and more) there is probably less than one who is not satisfied. The latter talk and write, and those who are satisfied do not do either, and those who have not done—and probably never will do—a stroke of honorary work for the U. P. A. S. I., or their own Associations are led to suppose the Labour Department of the U. P. A. S. I. are an expensive and inefficient machine. Why not publish some figures of those who *have* used the Labour Department successfully?

	Rs.	A.	P.
These are mine :—			
Dr. Subscriptions paid 1919-20 ...	270	3	0
1920-21 ...	321	3	6
on 22-6-21 ...	103	2	0
	694	8	6
Cr.			
Labour Agency.			
Collected by U. P. A. S. I. Labour Agency :—			
Sigamony	251	0	0
Kempa's coolies absconding to Ceylon ...	52	0	0
Nunja's cooly	35	0	0
Advance repaid through mediation, U. P. A. S. I. Labour Department—Kempa ...	961	5	2
Buying Agency Rebate granted on bills already received	157	8	0
Cr. ...	1,456	13	2
Dr. ...	694	8	6
Gain in 3 years on membership	762	4	8

Besides this I have gained Rs. 570 on rebates allowed, on motor goods alone, to the Nilgiris Planters' Association, who combined long ago to obtain discounts.

With regard to the Labour Agency, some people will never see that the fact that 90% of their maistries and coolies are not defaulters to Ceylon or other estates is because they know we have a Labour Agency to catch them. Such people probably never troubled to read the figures of the results of the Labour Department's work published by the "Planting Chronicle" some two years back (Editor, please quote number if possible)*

With regard to the Buying Agency : Those who cannot make out an actual credit account, such as I have, and therefore don't believe they gain anything by supporting ia Labour Department can, at least, grasp the gain from a Buying Agency f they enter up credits received on their bills.

We have nothing against fair criticism; and one point made by "Interested" is perfectly correct. I know what I am talking about, as I have done Co-operative business before, myself. The percentages at present offered are not real "trade terms" at all, and a buying agency has a right to *real* trade terms. One planter I know recently obtained jute hessian at 25%, and another over 25% discount, under strictly confidential guarantee of course! Well, is it likely that the firms who will run this risk will not give our Agency the same discount for probable orders of hundreds of thousands yards, which they gave for a few hundred yards?

Motor bi-cycles and cars, guns, and (probably) whole factories can be bought at discounts of 15% to 25%, and there are cases in which 40% trade discount is allowed. I myself previously easily obtained 5% discount from one firm who is published as offering the Buying Agency 2½%! Many men argue and at present quite rightly, that they can do better for themselves without sending the cash in advance to the Buying Agency. That is no reason however, for not joining it; for the more our buying amounts to, the more discount we shall be offered.

We should approach manufacturers—not retailers—of such goods as motors, corrugated iron, tools, and guns; and the saving between manufacturers trade terms, and tradesman's(so called) trade terms on their retail prices will astonish some of those who now think it will not pay to run a Buying Agency. I have very little hesitation in saying an iron factory costing Rs. 50,000 in India can be obtained and landed here, say, from America, at a saving of over Rs.10,000; but as I am now enquiring on this subject I hope to let you know, at all events confidentially *re.* this later.

I am, Sir,
Yours faithfully,
A. V. NILGIRIS.

* [NOTE BY ED—P. C.] We presume our correspondent means the report of the Control Committee on page 590 of the P. C. Vol. XIV, 1919, and the Reports of the Director published annually before that. Since 1919 the report has not been published, but issued privately.

Important Announcement.

Messrs. BUCKLEY & Co.,
1, South Parade, Bangalore.

Begs to inform their numerous clientele and the Public that they have re-opened their business at the above address from the 1st June with a large stock of English Goods at prices that will defy competition.

All orders executed with the utmost care.

Fit and Style guaranteed.

FOR SALE.

One Persian Deer-Hound. Six months old Slut, Rs. 100.

Apply "Shikaree," C/o "Planters' Chronicle," Coimbatore.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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THE U. P. A. S. I. LABOUR DEPARTMENT.

In view of the decision of the Executive Committee to re-open the Trichinopoly Agency, and to investigate in the Chingleput, Puducottah, Arantangy and Manaparai areas the cases that were outstanding on the 31st March last, the following arrangements have been concluded :—

Trichinopoly.

An Agent has been appointed, and will commence work from 1st August next. It is not possible with the funds allotted to make this a full working agency, and the agent's duties will therefore be clearly defined as follows :—

All cases that were pending with the Labour Department on 31st March, 1921, will be again taken up and brought to a conclusion as soon as possible.

(*N.B.* Estates must write to the Superintendent, Coimbatore, regarding their outstanding cases. The Labour Department will go on as far as possible with cases on their files, but accepts no responsibility unless all cases are again referred to them for attention).

The Agent will assist estates in so far as their *existing* connections are concerned, but will not be called upon to leave Trichinopoly except on old pending cases. He will for instance entrain coolies, make advances, etc., but cannot be sent out on investigation work of any nature, with the exception mentioned. If Estates so desire they may ask for him to be sent *at their expense* into any of the surrounding taluks, and they will be met as far as possible. Briefly, he will do any work which does not involve travelling.

In view of the above, only old and existing cases and connections can be taken up. No new work will be undertaken.

Chingleput.

Arrangements have been concluded for all the pending cases in this Division to be taken up. The Department will go on with cases which are known from the files to be pending, but should be again reminded by Estates of these cases, to *ensure* attention being paid to them.

No new work or cases of any nature other than those pending on 31st March, 1921 will be undertaken.

Civil Suits will be handled by the Department through the Coimbatore Office, if necessary, at the expense of the estates concerned.

Puducottah, Manapara, and Arantangi.

For the present, Estates having pending cases in these areas should write to the Superintendent, Labour Department, Srivilliputtur, giving him full details of all cases pending on 31st March, 1921. Arrangements are in progress by which it is probable the Manaparai cases may be worked from Trichinopoly through the Coimbatore Office, and due notice will be given if the change is decided upon.

(Signed) EDWIN VINCENT,
Superintendent,
U. P. A. S. I. Labour Department,
Coimbatore.

THE SCIENTIFIC DEPARTMENT, U. P. A. S. I.

Die Back of Coffee.

The dying back of Coffee branches and the withering up of the fruit on them is a well known disease in South India which varies in intensity with the season. It has always been somewhat of a puzzle, and from time to time has been attributed to the attacks of several different fungi. A microscopical examination of the dead shoots shows, as a rule, the presence of a number of different fungi, but the actual cause could not hitherto be definitely assigned to any of them.

This disease is common in Uganda, and an article in the *Kew Bulletin No.* 2 *of* 1921 by Small, throws a lot of light on the subject, and shows that a fungus known as *Colletotrichium coffeanum* is the cause of the trouble. The following information is taken from this publication.

In Uganda, the disease is accompanied by a leaf spot or blotch, but I have never succeeded in finding this in South India, though I have often looked for it. There is a good deal of confusion about names, but it now seems clear that the following are synonyms and all relate to the same species of fungus which should, in future, be known as *Colletotrichium coffeanum; Gleosporium coffeanum*, *Colletotrichium incarnatum*, and *Glomerella cingulata.*

As mentioned above, examination of the dead and dying branches shows the presence of a number of different fungi. Mycelium, or fungus threads, are found in the tissue of the wood and bark. This Mycelium has dividing walls, is branched, pale brown in colour, and may be nodulose. It penetrates transverse cell walls, and so works its way between adjacent cells as to bring about splitting and cracking. It fills the cortical tissues more fully than those of the wood, and it consumes the cell contents, thus leading to the drying up and death of the shoots attacked.

In order to find out which of the various fungi present was responsible for the disease, Small made pure cultures of them all, and then did some inoculation experiments, introducing the pure fungi into healthy coffee, and noting the results. Inoculations with *Colletotrichium* were made by wounds and punctures on twigs and at the nodes of the leaves and at the tender growing point, and also by placing the fungus on both surfaces of the leaves and upon unwounded portions of the stem. It was found that leaf inoculations were far more successful than any others, and 11 out of 12 leaf inoculations gave positive results, and, later, 100% of leaf inoculations were successful. Old leaves were as susceptible as young ones, and the upper surface as the lower. The first signs of leaf infections were noticeable after 15 or 16 days, and the mycelium of the fungus was traceable through the leaf stalks into the stem. As a final test, the *Colletotrichium* fungus was recovered again and recognised from the inoculated plants.

The fungus is not an aggressive parasite, however, and it does not cause die back unless the conditions for its attack are favourable. Such conditions are coffee weakened by attacks of ordinary leaf-disease, or over-bearing, or by neglect of cultivation and manuring. There can be little doubt, however, that *Colletotrichium coffeanum* is the fungus which causes die back. The same fungus, or one very closely related to it, is found on Caeao pods, and also causing a die back of certain garden plants like *Eranthemum* and *Croton*.

Another member of the genus—*Colletotrichium camelliae*—causes the Brown Blight of tea leaves, a well known disease in South India; while *Colletotrichium* (or *Gleosporium*) *albo-rubrum* causes the young shoots of Hevea Rubber to die back, and into these dead shoots another fungus *Botryodiplodia theobromae* enters and continues to kill them, thus causing the disease known as die back to rubber planters. Other species are known to attack various fruits like Banana, Mangoes, Guavas, etc.

Methods of prevention are primarily cultural. Keep the Coffee in good heart by cultivation and manuring, plant only good healthy stock from specially selected seed, and only the best plants from the nursery. During the course of spraying experiments to prevent leaf disease, it was found that die back was also prevented. In the light of the above, this was because the Coffee was rendered more healthy and vigorous by protecting it from Leaf disease, and it was able to resist the attacks of a weak parasite like *Colletotrichium*.

(*To be continued*)

(Signed) RUDOLPH. D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

27th July, 1921.

SECRETARY'S REPORT NO. 27.

No Report was issued last week, as there was nothing of importance or interest to comment on.

1. INTERNATIONAL LABOUR CONFERENCE, GENEVA.—Yesterday, a cable was received from Mr. Waddington pointing out that the Secretary of State for India had not yet received from the Indian Government the names of the selected Advisers to the Employers' Delegate to the International Labour Conference which is to be held at Geneva in October. The Millowners' Association, Bombay, who undertook to collect the names of nominees for the posts of Advisers to the Delegate, have been both wired and written to, and have been asked to urge Government to make their selections for the posts of Advisers at an as early date as possible, in order that they may have ample time to receive information as to conditions of Agricultural Labour throughout India, as conditions vary to a very great extent in the different Presidencies and Provinces.

2. SHIPPING FREIGHTS.—On the 21st instant, Messrs. Aspinwall & Co. advised the reduction in the Shipping Freights to London on Rubber by 7s. 6d. per ton. The rates now stand as follows for shipments from the West Coast to London:

Tea	...	65s.	per ton of 50 c. ft.
Rubber	...	57s. 6d.	,, do
Coffee	...	57s. 6d.	,, ton of 18 cwts.

3. RUBBER PRODUCERS' CORPORATION.—The Ceylon Chamber of Commerce has forwarded to this Association the full text of a lengthy cable which they have received from the Rubber Growers' Association, dated 16th instant, giving full details of the proposed flotation of the Rubber Producers' Corporation, Limited, by means of which it is hoped to control the output and sales of rubber produced on not less than 2,200,000 acres of plantation rubber. This cable is being printed in full in the current week's issue of the "Planters' Chronicle," for the information of all members. This subject will come up for consideration at the Annual General Meeting under item No. 34 of the Agenda.

4. COLOMBO HOTELS.—The Galle Face Hotel, Colombo, are prepared to allow Rs. 2 per diem reduction to all Members of this Association staying at that Hotel. The Hotel, however, insist on proof of membership, and they will accept either a letter from this Office stating they are members of the U. P. A. S. I., or they will accept as proof of membership the production of the Upasi Buying Agency Member's Ticket. The present rate for Members of this Association will therefore be Rs. 12 per diem, not including afternoon tea. In the event of rise in rate they will continue to give this Rs. 2 per day rebate, and will advise this Association of any such alteration.

(Signed) C. H. BROCK,
Acting Secretary.

RUBBER TRADE ASSOCIATION OF LONDON,

Monthly Statistics.

JUNE, 1921.

Movements of all kinds of Rubber to and from the United Kingdom as per BOARD OF TRADE RETURNS.

IMPORTS.

From	May.			Five Months ended May.		
	1921.	1920.	1913.	1921.	1920.	1913.
Straits Settlements and F. M. S. ...	4,459	1,778	1,976	27,129	21,358	10,041
Ceylon and British India ...	1,573	1,288	343	9,971	10,790	2,760
Dutch East Indies, &c. ...	1,487	536	110	7,199	3,879	516
Brazil and Peru ...	81	1,334	2,021	1,004	3,945	10,286
Other Countries ...	55	436	1,665	474	1,429	8,118
Total Tons ...	7,655	5,372	6,115	45,777	41,401	31,721

EXPORTS.

To	May.			Five months ended May.		
	1921.	1920.	1913.	1921.	1920.	1913.
United States of America ...	421	2,104	1,361	3,738	20,038	6,550
Canada ...	7	201	50	13	1,752	188
France ...	288	1,494	438	1,487	6,723	1,989
Belgium ...	56	122	164	299	1,355	833
Italy ...	23	315	39	387	1,759	104
Spain ...	4	15	3	56	81	28
Germany, Austria, Hungary ...	579	628	1,079	3,065	1,801	4,738
Russia ...	...	3	633	...	22	3,021
Sweden, Norway and Denmark ...	77	159	89	463	459	301
Other Countries in Europe ...	112	30	130	539	185	584
Other Extra European Countries...	13	98	94	34	418	326
Total Tons ...	1,580	5,169	4,080	10,086	34,593	18,662

LANDINGS, DELIVERIES and STOCKS in London and Liverpool as returned by the Warehouses and Wharves during the month of May.

		Landed for May.	Delivered for May.	Stocks 31st May. 1921.	1920.	1919.
LONDON ...	Plantation ...	6,510	4,869	70,006	20,354	22,366
	Other Grades...	3	...	397	567	351
LIVERPOOL...	Plantation ...	1,081†	153†	6,965†	1,104†	3,770†
	Para & Peruvian	298	355	1,005	1,350	1,270
	Other Grades.,	...	...	460	445	478
Totals London & Liverpool...		7,892	5,377	78,833	23,820	28,435

† Official Returns from the six recognised Public Warehouses.

Movements of all kinds of Rubber, excluding Gutta, Balata and Guayule, to and from the U. S. A. AS PER RETURNS OF THE UNITED STATES DEPARTMENT OF COMMERCE.

	March. 1921.	1920.	1919.	Three Months ended March. 1921.	1920.	1919.
IMPORTS ...	12,729	36,820	28,858	34,535	98,330	54,101
EXPORTS ...	279	248	181	1,120	565	401

RECEIPTS AT PARA.

	April. 1921.	1920.	1919.	Jan./April (4 months) 1921.	1920.	1919.
Rubber ...	1,374	2,230	2,340	6,072	10,120	11,065
Caucho ...	520	1,190	1,110	1,485	2,850	2,790
Total...	1,894	3,420	3,450	7,557	12,970	13,855

Estimated for May.	Rubber ...	1,380
	Caucho ...	320
		1,700

THE RUBBER PRODUCERS' CORPORATION, LIMITED.

The Secretary, U. P. A. S. I. has received the following cable from the Rubber Growers' Association, London, through the Ceylon Chamber of Commerce with reference to the proposed formation of a Corporation to control the Output and Sales of Rubber, to regulate the opening up of new areas, to purchase Rubber, and to make advances for maintenance of Estates.

The cable is published in full, exactly as received.

Provisional Assents on the part of Local Companies should be forwarded to the Secretary, Local Branch, R. G. A., Coimbatore.

Telegram, dated 16th July, 1921.
Received : 18th July, 1921.

From the Rubber Growers' Association, London.

To the Ceylon Chamber of Commerce, Colombo.

Circulars issued 15th July all producers of plantation rubber covering following scheme which is not a prospectus : Begins :

The Rubber Producers Corporation Limited.

1. Primary objects of the Corporation :—

A. To control the rubber output of its members.

B. To fix the selling price and regulate the sale of the rubber produced by its members.

C. To regulate the opening of further rubber lands by its members.

D. To purchase or make advances on the rubber harvested or to be harvested by its members.

E. If deemed desirable, to make advances on securities and on terms to be agreed to approved rubber estates belonging to its members.

The Corporation will not exercise any functions in regard to the management or control of estates belonging to its members except in regard to the matters referred to in this clause.

2. Capital :—

Nominal capital £2,000,000 in 2,000,000 shares of £1 each, borrowing powers up to an amount of 8 millions sterling either by debentures or otherwise, of which a minimum of £3,000,000 is to be raised in the first instance. It is proposed to allot the ordinary shares to rubber plantation Companies or individual sowning plantations upon joining the Corporation, in the ratio of one share for each planted acre of rubber they possess, on consideration of their entering into agreements binding the holder to conform to such conditions and regulations as the Corporation may impose with a view to carrying out the above objects, and of their subscribing for these shares as follows. For every acre of mature rubber 2s. 6d. per share on application, 2s. 6d. per share 3 months after allotment, 2s. 6d. per share 6 months after allotment 2s. 6d. per share 9 months after allotment ; or every acre of immature rubber 2s. 6d. per share on application 2s. 6d. per share 3 months after allotment 5s. per share when the acreage in respect of which such shares are allotted reaches maturity. It is anticipated it will not be necessary to call up the balance on the shares.

It is proposed that the Corporation shall include estates owned by British Companies and individuals wherever situated and by Companies or individuals in British territories or protectorates, whilst a similar Corporation is to be formed simultaneously to include estates owned by Dutch interests, and by Companies or individuals in the Netherlands East Indies. A working agreement would then be entered into by the two Corporations to ensure conformity of action.

The agreement to be entered into between the Corporation and its shareholders and between the Corporation and the Dutch Corporation shall be for a first period five years, or until a resolution for the voluntary winding up of the Corporation is passed at a Meeting of Shareholders at which 75% of the Capital is represented.

The Corporation will not go to allotment until the owners of at least 2,200,000 acres, inclusive of the Dutch Corporation membership, have agreed to come into scheme.

3. Debentures.—

It is an essential part of the scheme that either

(a) the subscription of £3,000,000 of debentures shall be guaranteed before the Corporation is actually registered or

(b) satisfactory arrangements must have been made for finance to the extent of at least £3,000,000 in addition to the Share Capital.

Any Members of the Corporation may subscribe to any debenture issue which may be made but this is not obligatory.

4. The Articles of Association of the Corporation will provide for,—

(a) Transfer of shares to be effected only on a transfer of the relative Estates.

(b) The introduction of new members from time to time on terms to be fixed by the Court of Directors.

(c) Enforcing the performance of the contracts and conditions entered into by shareholders with the Corporation.

5. Management.—

Court of Directors.—The control of the Corporation affairs shall be in the hands of a Court of Directors—approximately one Director to every 100,000 acres—representing as follows :—

London Companies and Proprietors owning estates in Malaya 6 Directors.

London Companies and Proprietors owning estates in Ceylon 2 Directors.

London Companies and Proprietors owning estates in Borneo 1 Director.

London Companies and Proprietors owning estates in Sumatra 2 Directors.

London Companies and Proprietors owning estates in Java 2 Directors

London Companies and Proprietors owning estates in India and Burma 1 Director.

Ceylon Local Companies and Proprietors 2 Directors, Malaya Local Companies and Proprietors 2 Directors total 18 Directors representing debenture holders 3 Directors total 21.

Excepting those representing the debenture holders, the Directors are to be nominated in the first instance by the Council of the Rubber Growers' Association, who will obtain the nominations of the Ceylon Local interests and Malaya local interests of their representatives on the Court. The Directors nominated by the Council shall come up for re-election at the first Ordinary General Meeting, and thereafter 1/3rd shall retire annually.

The Directors will as far as practicable be elected by the shareholders grouped according to the Countries in which their estates are situated, the local interests being grouped separately from the London interests.

EXECUTIVE BOARD.—Four Members of the Court of Directors, of whom one shall be a Director representing debenture holders, together with a Manager and a Secretary shall form the Executive Board of Management for carrying out the instructions of the Court.

The Manager must be a man of the highest business ability and standing, and the Corporation must be prepared to pay on a sufficiently generous scale to secure the best possible men.

The Secretary should be a first class Accountant, capable of organising and controlling the accounts of the Corporation with the utmost efficiency, and should be preferably a fully qualified and experienced Chartered Accountant.

JOINT ADVISORY BOARD.—A Joint Advisory Board shall be established to ensure collaboration between the London Corporation and the Dutch Corporation, consisting of 3 members nominated by the Directors of each Corporation.

REMUNERATION.—The remuneration of the Court of Directors shal lbe fixed by the shareholders in General Meeting. The Court shall fix the remuneration of the Executive Board and of the Joint Advisory Board.

6. Output and Sales—

(a) The output of Rubber by members, including provisions for young areas on their reaching maturity, will be regulated equitably by the Court of Directors, and may be varied from time to time to meet market conditions.

(b) The Court of Directors shall fix from time to time the prices at which the rubber controlled by the Corporation may be sold.

(c) On all sales of Rubber controlled by the Corporation there shall be paid to the Corporation a sum per lb. to be fixed by the Court of Directors, which must be sufficient to enable the Corporation to pay the expenses of management, to pay interest and to provide a sinking fund for the redemption of debentures, and to accumulate funds at the credit of its several members as surety for the due fulfilment of their obligations to the Corporation. If the charge in the first instance be fixed at, say, 1d. per lb. it is estimated that the revenue from this source, together with interest on advance, would yield an annual income which would be sufficient for the purpose indicated. This charge may be increased, but shall not exceed 2d. per lb. without the consent of a General Meeting.

(d) All Rubber harvested by Members will be consigned as at present and sold as authorised by the Court of Directors through the usual Channels, the Brokers being responsible for passing directly to the Corporation the charge before referred to.

(e) All Forward Contracts which existed on the 15th July 1921 shall be notified to the Corporation on its formation and shall then be duly recognised.

7. General.—Members must supply to the Corporation such information as it may call for in regard to the particulars of areas owned by them, the acreage of rubber mature and immature, the ages of the trees, the crops harvested in the past, existing stocks and such other particulars as may be required for the purpose of the Corporation. Ends.

Circulars accompanying scheme deals with reason for voluntary 25% restriction not having desired effect. Situation more critical yet over-production continues. Difficulty with small holdings. Government decline assistance, leaving industry to work out its own salvation. War upset calculations particularly regarding motor transport. Post war boom led everyone believe that peace requirements greater than proved to be. Cord tyres giving greater mileage. Price stabilisation would be beneficial. Existing plantations alone capable yielding 500,000 tons annually shortly. Words stocks 300,000 tons present normal requirements 150,000 tons being 7 months consumption. Council considers no material relief through early expansion in demand producers faced with alternative continuing to produce more rubber than being consumed, increasing surplus stocks further depressing price and bringing disaster large section of industry or combining regulate production and sale. Principal factors are existing stocks potential 1922 output over 400,000 tons, while consumption unlikely exceed 250,000 tons and vitality rubber tree which after maturity remains potential source of rubber even if upkeep neglected. Council believe that scheme outlines practicable method rehabilitating industry. Scheme adhesion 2,200,000 acres only possible in spirit of co-operation. Co-operation with Dutch interests and principal local producers in East essential, and Council believe nearer approaches unanimity now. Council emphasise restriction alone temporary palliative. If restriction left to individual producers no stabilisation possible, for as soon as prices rose profitable levels there would be scramble for labour over production again and consequently slump in prices. Appeal made all producers refrain entering into further Forward Contracts which greatly prejudice successful establishment of corporation. All producers urged give scheme wholehearted support. Provisional assent—*Begins.* To the Council Rubber Growers' Association. We agree that in event of Rubber Producers Corporation being formed as nearly as possible on the basis of the scheme accompanying your Circular dated 15th July 1921 we are prepared to become members thereof in respect of the below mentioned acreage, subject to the scheme in its final form meeting with our approval. Total area planted or interplanted with rubber . . . . . . acres. *ENDS.*

Council when adopting scheme also passed following resolution:—*Begins.* In view of imperative necessity immediate reduction output by at least 50% and having regard to delays which will necessarily ensue before scheme for Rubber Producers' Corporation can become operative, Council recommend all producers of Plantation Rubber who have not already done so to take necessary steps to bring such reduction of output into effect immediately. *ENDS.*

Do your utmost to give publicity arrange circulate details local producers Estate Agents Association Planters' Association and appoint representatives receive Assents our behalf. Please communicate entire message South India.

THE MIXED CULTIVATION OF HEVEA AND ROBUSTA COFFEE.*

During the year 1906 the well known Besoeki planter, Mr. David Birnie, took the initiative in constructing mixed plantations of Hevea and Robusta coffee at Bajoe Kidoel Estate, Banjoewangi.

At that time both cultivations were still in their infancy, and the future for either one was uncertain. In order to decrease the risk by 50 per cent. the Hevea gardens were interplanted with Robusta. It soon became clear that the advantages were far in excess of the disadvantages, and the example thus set was immediately followed by other planters. In the beginning many a board of directors did not favour the new system, but for the last ten years it has been the rule in East Java to cultivate Hevea with Robusta interplanted. At the present time not an expert would think of omitting Robusta in a new clearing for rubber cultivation.

Especially during and after the war it has been proved how important it is for an estate not to be dependent on one product. There was a time when coffee could hardly be sold at all, but the estates still had their income from rubber. Just now the rubber market is very poor, so that many estates cannot make profits, but even though the price of coffee is not high either, it is worth while cultivating it.

There are several reasons why this system is hardly found outside of East Java, and is not being followed in other rubber-growing districts. Owing to the favourable climate, but especially to the good soil, East Java has always ranked among the first coffee districts. The soil is of recent volcanic formation, is easily penetrated by the air, and not heavy, which is favourable for the proper development of coffee. When the cultivation of rubber was adopted, many Java coffee estates were in existence, but they were not in a very flourishing condition, owing to the fatal leaf disease. Consequently coffee factories with the necessary mechanical power and equipment were available, and the managers were expert with the cultivation of coffee. When, therefore, it became evident that coffee and Hevea were an excellent combination, the planters planted the new clearing with both.

In other rubber districts coffee cultivation has never been of very much importance. That soil is heavier and less friable, so that Robusta can never be as profitable as in East Java. It is probable, moreover, that Hevea develops more rapidly in heavy soil, with the result that the dense shadow of the trees impairs the coffee crops after a short period of production. These facts, coupled with the lack of expert managers, explain the absence of mixed plantations outside of East Java.

It has been asked, why, on a 2,000 acre estate, the owners do not plant 1,000 acres rubber and 1,000 acres Robusta separately, instead of a mixed plantation of 2,000 acres. At first thought one would say that this method is better, because one can give each plantation exactly what is necessary for proper development, while in a mixed plantation one crop may interfere with the other in the long run. In a separated plantation, however, the decrease of risk is much less. In case either Robusta or Hevea proved to be a failure, 1,000 acres would have to be written off, but in a mixed plantation the entire area would be preserved by cutting out the trees of the product to be disposed of. Now it has been proved clearly that in East Java Hevea and Robusta are both profitable crops, and yet a planter will start with a mixed plantation when clearing for a new estate, for nobody can tell how the conditions as to coffee will be in years to come. In the Netherlands West Indies a leaf disease ruined Hevea in a few years, and in the East Indies a little beetle that penetrates the fruit is a menace to the Robusta.

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*A Paper by Dr. A. J. Ultee (Director of the Besoeki Experimental Station, Djember, Java), delivered at the International Rubber Conference.

However, decrease of risk is not the only point in favour of a mixed plantation. Hevea is planted thinly so that during the first years there is the probability of a decreased fertility, partly due to the showers that wash away the upper soil, and also to the intense sunshine, which burns the humus. When the interplanting system is followed, however the soil is soon shielded from intense direct sunlight, while the densely growing hairroots of the Robusta prevents the soil being washed away.

A third important advantage of a mixed plantation must be noted. If only Hevea were planted, one would have to wait five years before the first crop would come in, because in East Java the greater part of the estates are situated on the slopes of the mountains, and not in the low plains. A catch crop like Robusta gives good harvests after three years, so that revenue comes in sooner. Many estates would have had to clear less quickly, and would have paid dividends much later if they had not had their Robusta crops.

And now having stated the advantages, we must also state the disadvantages. In the first place it is harder to find managers who are expert in both cultivations, and who will take proper care of the estates. Furthermore the coffee will always act as a slight obstacle to the development of Hevea so that the latter will come to the tapping stage a little later. When the rubber trees are in bearing, there is more danger of a disease like stripey canker than would be the case in a pure Hevea plantation.

These disadvantages are not very weighty, however, in view of the advantages to be stated presently, but we must say something about the practical advantages of combining Robusta with Hevea. One cannot expect a uniform working plan for all estates, on account of the difference in climate, altitude and formation of the soil.

In 1906, Mr. David Birnie chose a dense planting configuration for the coffee, namely 6 feet by 6 feet, in order to obtain soon a closed plantation, which makes the up-keep easier (less weeding and less labour), and also in order to obtain large crops in the first years. The Heveas were planted 12 feet by 24 feet, where the Robusta would be if the plantations were not mixed. At the same time the young coffee received shadow from a row of ***Leucana Glauca.***

According to this scheme, 140 Hevea and 1,000 Robusta trees were planted per acre.

It is essential, for a proper control, to cut out the coffee in the rows where the Heveas are 12 feet apart, as soon as the tapping is commenced. Since the 140 Robustas to be cut are of little use, we do not plant them nowadays when clearing. There is much variation in the planting configuration of the Hevea as well as of the Robusta. Some planters think 6 feet by 6 feet too dense a configuration, and prefer 7 feet by 7 feet, even 8 feet by 8 feet, giving the Hevea distances of, e.g., 21 feet by 21 feet, or 16 feet by 24 feet, etc.

Of course there is still more variation in the case of an older plantation. Naturally everybody cuts out the rows of shade trees, because the Heveas take over their duties. Local circumstances and the market value of coffee and rubber determine how the plantation shall be treated later on. An estate at low altitude, where Hevea grows very well, as a rule gradually cuts out its Robusta, keeping a pure rubber plantation. Estates situated at a greater altitude will save their coffee as long as can be, and cut the poorest Heveas. Undoubtedly the safest way is to assign part of the estate exclusively to Hevea, and gradually cut out all the Robusta, and keep the rest of the estate as mixed plantation with coffee as principal cultivation, so that it does not suffer from the Hevea that is being retained.

It must be granted that it is not an altogether simple matter to act according to these rules, and the decision has been put off on more than one estate until it was too late.

In closing this presentation of the advantages of mixed plantation of Hevea and coffee, we shall give a statement taken from practice, showing the results obtained from an experimental plantation of two "bouws." The Robusta is planted 6 feet by 6 feet, the Hevea 12 feet by 22 feet. The coffee crops were as follows—

	Picol.
During the 3rd year per acre ...	22·8
During the 4th year per acre ...	21·7
During the 5th year per acre ...	20·0
During the 6th year per acre ...	10·3
During the 7th year per acre ...	9·4
During the 8th year per acre ...	13·1
During the 9th year per acre ...	6·8
During the 10th year per acre ...	3·2

When all the Robusta had been cut, 10 years after planting, they had produced 107·3 picol per acre. This is abnormally high, and can only be obtained with very favourable weather, and in an experimental garden, where every care can be taken.

Therefore the following, stating the results of a plantation of 38 "bouws," have more value.

The coffee was planted 8 feet by 8 feet, and produced:—

	Picol.
During the 3rd year per acre	17·4
During the 4th year per acre	8·6
During the 5th year per acre	13·1
During the 6th year per acre	6·8
During the 7th year per acre	3·2
During the 8th year per acre	3·0

The following data were obtained from an estate, started in 1907, and possessing mixed plantations, as mentioned below:—

107½	Bouw plantation of	1907
62½	Bouw plantation of	1908
50¾	Bouw plantation of	1909
286½	Bouw plantation of	1910
295½	Bouw plantation of	1911
60¼	Bouw plantation of	1912
863	Bouw Total.	

Before the Hevea was ready for tapping, the profits on coffee crops were :—

		F.
In 1910	...	14,546
In 1911	...	72,254
In 1912	...	89,239
In 1913	...	73,616
Total	...	F. 249,655

During the following years the profits were :—

In 1914	Coffee	f. 179,115	Rubber	f. 39,068
,, 1915	,,	f. 176,035	,,	f. 106,213
,, 1916	,,	f. 128,980	,,	f. 282,958
,, 1917	,,	f. 57,717	,,	f. 288,279
,, 1918	,,	f. 40,285	,,	f. 100,657
,, 1919	,,	f. 31,397	,,	f. 379,054
	Total	f. 613,529		f. 1,196,229
Before 1917		f. 249,655		
	Total	f. 863,284		f. 1,196,229

1 picol = 1·21 cwt. 1 bouw = 1¾ acres.

THE RUBBER GROWERS' ASSOCIATION.

(INCORPORATED)

Ref. 10-21 5th July, 1921.

Circular to Members and the Press

Dear Sir(s),—With reference to the Circular, dated 7th June, I have to advise you that at a Meeting of my Council, held on 4th instant, the following resolutions were carried:—

(1) That the revised draft scheme for a "Rubber Producers' Corporation" submitted to this meeting be adopted as the proposal of this Council, and that the Output Control Committee be empowered to take steps with all speed to secure the support necessary to make the scheme effective, with discretion to make such amendments in the scheme as may be found necessary.

(2) That, in view of the imperative necessity for an *immediate* reduction of output by at least 50%, and having regard to the delay which will necessarily ensue before the scheme for a "Rubber Producers' Corporation" can become operative, the Council recommend all producers of Plantation Rubber, who have not already done so, to take the necessary steps to bring such reduction of output into effect *immediately*.

In regard to the first resolution, a Memorandum is being drawn up to accompany the scheme, and the documents will be issued with the least possible delay.

Yours faithfully,
FRANK G. SMITH.

INDIAN TEA ASSOCIATION.

The Secretary, Indian Tea Association, issues, for the information of members, the subjoined extract from a memorandum, dated 10th May, 1921 which has been issued by the Department of Customs and Inland Revenue, Canada, containing the text of resolutions with regard to the marking and stamping of goods imported into Canada.

Extract referred to.

MARKING AND STAMPING OF IMPORTED GOODS.

4. Resolved, that the Customs Tariff, 1907, be amended by inserting the following section immediately after section 12 :—

12a. That all goods imported into Canada which are capable of being marked, stamped, branded or labelled, without injury, shall be marked, stamped, branded or labelled .in legible English or French words, in a conspicuous place that shall not be covered or obscured by any subsequent attachments or arrangements, so as to indicate the country of origin. Said marking, stamping, branding or labelling shall be as nearly indelible and permanent as the nature of the goods will permit.

Provided that all goods imported into Canada after the date of the coming into force of this section which do not comply with the foregoing requirements shall be subject to an additional duty of 10 per cent, *ad valorem*, to be levied on the value for duty purposes, and in addition such goods shall not be released from Customs possession until they have been so marked, stamped, branded or labelled under Customs supervision at the expense of the importer.

Provided, further, that, if any person shall violate any of the provisions relating to the marking, stamping, branding or labelling of any imported goods, or shall deface, destroy, remove, alter, or obliterate any such marks, stamps, brands or labels, with intent to conceal the information given by or contained in such marks, stamps, brands or labels, he shall be liable on summary conviction to a penalty not exceeding one thousand dollars, or to imprisonment not exceeding one year, or to both fine and imprisonment. The Minister of Customs and Inland Revenue may make such regulations as are deemed necessary for carrying out the provisions of this section for the enforcement thereof.

Date of Operation.

5. Resolved, that any enactment founded on the preceding resolution shall be deemed to have come into force on 1st September, 1921.

LETTERS TO THE EDITOR.

(The Planters' Chronicle is not responsible for the opinion of its Correspondents.)

Picking of Coffee for Quality.

Sir,—I should be much obliged if some of your readers would kindly give me their ideas as to picking and preparation of coffee on the Estate, with a view to improving the quality.

After many years, I am told that the reason my coffee fetches such poor prices on the London market in comparison with previous years is that I do not pick ripe enough, and that the riper the cherry the better the bean as regards colour, etc. This I do not believe in, as my contention is that, as soon as the cherry is ripe enough to be put through the pulper with safety, its life's work on the tree must be finished, and that after this stage is reached it is then that the pulp itself only changes its colour.

Many years ago, when this same question cropped up of poor prices, I decidedly improved matters by drying under partial shade until the bean had set its colour, and when put into the sun this colour was retained. That crop was only 12 tons, and now I have to deal at times with 80 tons and over, and in view of present day shortness of labour one has no time to play about with it in this manner. My own idea is that it must come off the trees as soon as it is fit to put through the pulper with safety. I may be wrong in this after all, and it would give me great satisfaction to have the opinion of others. Another handicap one has to contend against is as to what goes on in the London market. What do the brokers and buyers most value these days? At one time it was size and plumpness of bean, colour, amount of silver skin, etc., that we used to hear about, and then we heard that they had taken to liquoring it as well.

In a letter just received from my Proprietor, I am informed that a lot depends on the size of the parcels, and at times two days between sales will make all the difference. My coffee is sent home under two different marks, which we will call X and Y. On a certain date X is put up for auction and fetches 93/- for A and 82/6 for B quality On the very next day Y fetches 88/- and 78/- respectively. The following week exactly the reverse takes place. What is a poor man to do? Grin and bear with it all I suppose, and try and put another one cwt. per acre on the trees, and so prove that quantity will pay in the long run against

QUALITY.

Poonoor Estate,
Tamarachery P. O.

Rubber Stocks.

Dear Sir,—Much is said and written about the visible stock of rubber. I give you here a Dutch estimate.

Over 1920 the production was estimated at :—

	Tons.
F. M. S.	195,000
Dutch East Indies ..	85,000
Ceylon ...	42,000
British India ...	7,000
Borneo, Siam, &c. ...	8,000
Para and other wild rubber ...	36,000
Total...	337,000

America imported 221,000 tons, out of which 197,000 tons was plantation rubber, but this amount was by far not consumed by the rubber factories.

At the end of 1920 stocks were: —		Tons.
For New York ...		70,000
For London (England) ...		56,500
On the Continent :—		
Holland ...	6,400	
Antwerp ...	1,700	
Bordeaux ...	800	
Hamburg a. o. ...	1,600	
		10,500
Stock in countries of Produce.		68,000
Sailing		15,000
Visible work stock beginning 1921 ...		220,000 tons.

A very gloomy outlook if those figures are correct, and I don't think that they are far wrong,

Yours faithfully.

(Signed) . . . .

Manager.

(NOTE.—The Editor regrets this letter was by mistake held over from last week).

U. P. A. S. I. Buying Agency.

Dear Sir,—I am pleased to see Mr. Dandison and "a Ticket Holders" letters in the Chronicle to hand to-day.

My contention is that the officials of the U. P. A. S. I. might be employed to better advantage than in running this Buying Agency.

Surely, Mr. Dandison, it does not want a concern of this sort to keep us together. If that is the idea of the promoters, then Heaven help us.

The Labour Department is where the bulk of our money goes, and we want efficiency, and until we get that let us leave new schemes alone.

I am aware that the Nilgiris Planters' Association enjoy discounts in dealing with certain firms, and if their example had been followed and extended by other *District* Associations I would have had nothing to say.

Yours,

INTERESTED.

Upasi Buying Agency.

Dear Sir,—With reference to the correspondence that you have been publishing on this subject, I would like to thank "Interested" for his letter criticising the U. P. A. S. I. in starting the Buying Agency, as it has undoubtedly drawn more attention to the Agency, and thus has been the means of increasing its membership.

Amongst recent applications, I have received one from a gentleman whom I *least* expected to have the pleasure of enrolling as a member.

The following remarks sent me by a member show the spirit in which all planters should accept the venture:—

"I think the Upasi B. A. a splendid idea. It beats me why such a thing has never been started before. I can't say that the Labour Department has ever been any use to me—'praps that's my fault—and it will be my fault if the B. A. is the same."

Yours faithfully,

C. H. BROCK,

Acting Secretary.

NOTICE TO CORRESPONDENTS.—"Planter." Your letter is not authenticated.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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THE U. P. A. S. I.

Executive Committee's Report.

It has been the invariable custom in the past to publish in the "Planters' Chronicle" the Annual Report of the Executive Committee, but this year arrangements have been made to issue this in pamphlet form, so that Honorary Secretaries of District Associations may obtain from headquarters as many copies as they want. These, in fact, have now been sent out, and by the time this review is in print, will no doubt have been read by most planters. We do not, therefore, propose reprinting the report in these pages. Another change is the fact that weekly reports by the Secretary have made their appearance this year in the Chronicle, and these are in a way interrelated, certain business remaining unfinished last year being only now perhaps on the point of termination, so that they should be read together. It is obvious that, with so much time elapsing between the end of the financial year —31st March—and the appearance of the report, the latter sometimes speaks of things which rightly ought not to be included, but which it would be a mistake to leave out.

It is hardly our province here to single out any particular subject for comment, though we may find ourselves doing so later; it is more to the point to regard the report as a whole and wonder at the general activity of the Association in these times. The air of late has seemed charged with doubt as to the benefits planters receive in exchange for their subscription, and here, in 22 pages of printed matter, Mr. Brock has given us pabulum, which, quite apart from the Scientific and Labour Departments, whose reports are being issued separately, would strike the ordinary person as being in itself good value for the money. Particularly would we point out the efforts made by the Association, in conjunction with similar bodies in India and elsewhere, to remove disabilities which are not alone suffered by South India. In brief, apart from purely local matters, it will be seen from the report that the U. P. A. S. I. is more and more becoming a factor in Imperial affairs; questions such as duties and taxes, the Labour and Factory Laws, Restriction of Crops by Legislation, Statistics, etc., are constantly being referred to it, and the Association is thus increasing in value in the eyes of its subscribers as a medium through which authorities other than the immediate governing body may be approached. It is a moot point whether this expansion shall eventually, or even now, envelop the delicate question of Indian politics. This is a point which it has become the custom to avoid and in the past successive Chairmen and Planting Members have repeatedly asserted their belief in holding aloof as much as possible from such a sensitive matter. In later years the tendency has been more towards the Association taking what is, in some minds, considered to be its rightful place, and certainly when questions arise which, although purely political, have a direct action on planting affairs, we are of opinion that it would be folly to allow them to develop unnoticed. The next Chairman, whoever he may be, will have this problem before him.

We will leave the report at that, and close on a personal note. The Chairmanship of the U. P. A. S. I., we have often heard it said, should be the ambition of all good planters. Certainly there are many who have taken immense pride in the position, and we agree that it is an honour which few men can afford to despise. It is really rather extraordinary, looking over the list of past Chairmen, how very well the U. P. A. S. I. has been served, and whatever the outside public may think of the planter, there can be no gainsaying his acumen in choosing year by year the right man for the right place. In Mr. Congreve, again, the delegates of last year made no mistake; he has carried on his high office with dignity and ability, and will take his place on his retirement with those on whom we look back with a profound appreciation of their services. Planters will regret to learn that his health has not been as good as it might be, and he will take home with him after the Annual Meeting the good wishes of everybody connected with the industry, coupled with the desire for his speedy return in the best of trim, so that his counsels may not be lost to us in the future.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

Phoma on Coffee.

In continuation of the article published last week on *Colletotrichium* on Coffee, Small goes on to deal with another fungus found to damage Coffee in Uganda. This is a species of *Phoma* which is found on coffee stems, and which was suspected of having something to do with the cause of "die back." The minute black fruiting bodies of this fungus extrude yellow-red "tendrils" of spores after being kept 10 days to a few months in a damp chamber. These spores germinate readily in coffee leaf or prune agar, a medium made up for them in the laboratory. Mycelium is produced, at first white but becoming dark grey, and this produces concentric arcs stretching across the surface of the medium: finally it produces spores which will germinate in drops of water in from 9 to 10 days.

Coffee was inoculated with this fungus in the same way as described for *Colletotrichium*, but without success. This was a puzzle, since the fungus grows readily when put on to blocks of Coffee wood, and the fungus has been found inside die back wood. Infection, however, was found to be caused by a sucking insect, and in this connection, I would refer readers to what was said about the possibility of sucking or biting insects introducing diseases into plants by the Government Entomologist, Mr. E. Ballard, in his recently published article on Mosquito Blight.

The insect involved in the case of Coffee in Uganda is one known as the "variegated bug," *Antestia orbitalis*. This punctures and sucks the juices from twigs, buds and berries. In the study of the broken and chipped beans which on curing are frequently found inside what appear to be perfectly sound skinned cherries, it occurred to Small that the fungus found on such light beans might possibly be introduced by this sucking bug. Legs and beaks of the bug were examined, and found to be covered with *Phoma* spores, which germinated in culture in the laboratory in 48 hours. If, as appears probable from this, the bug carries the spores of *Phoma* in or on its beak, that is, in or on the organ it introduces into the tender tissues in order to suck, it is to be concluded that this pest is to blame, not only for the broken beans, but also for the presence of *Phoma* in tissues which this fungus may be incapable of penetrating without the help of an outside agent. *Colletotrichium* was absent from the variegated bug leg and beak cultures, but this may have been mere accident, and it is possible that this fungus also is introduced into the Coffee by this insect pest, and then produces "die back" of the shoots. *Phoma* fruits can be found on healthy branches apparently causing no harm, and probably lying in wait, as it were, to initiate a vigorous attack on the weakening of the Coffee bush owing to the results of unfavourable conditions such as leaf-disease, unsuitable climatic conditions, or over-bearing. Recommendations made with regard to the Coffee die back, with which both *Colletotrichium* and *Phoma* are implicated, consist of measures designed to produce a healthy and resistant tree.

Now the foregoing is of great interest to us in South India for two reasons. First of all, we have got this insect, or one closely related to it, *viz*, *Antestia cruciata*. Fletcher in his book "Some South Indian Insects" says it is "distributed throughout Southern India," and that its food plants are "Coffee and Jasmine!"

It has occasionally been reported to me as doing a considerable amount of harm. Control methods recommended are hand-catching, or shaking the infested bushes over cloths saturated with oil.

In the second place, we have got the fungus. Species of *Phoma* were found attacking Tea in 1919, so it probably exists on coffee estates also. The light bean we know, and I have constantly had complaints sent me about this, as also the cherry with the local spot on it where it has probably been bitten by an insect and the fungus, *Phoma*, or some other, has got in. Dr. Butler, some years ago, suggested to me that this was the cause of this spot on the cherry, and in the light of the above, he was almost certainly right.

Another species of *Phoma* occurs on Hevea Rubber branches, apparently without doing any harm. This may be because there is no biting or sucking insect which attacks the Rubber, and so the fungus is unable to gain an entrance to the tissues of the tree.

(Signed) RUDOLPH. D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT NO. 9.

The Deputy Director of Agriculture, Planting Districts, has been at headquarters since his return from South Travancore on 15th July, engaged upon routine work and correspondence.

2. THE EXPERIMENT STATIONS.—Monsoon conditions have returned, and all the Stations report rain during the week ending 23rd July. The Coffee Station registered 6·10 inches, the Tea Station 6·18 inches, the Rubber Station at Mooply 3·35 inches, and at Tenmalai 3·35 inches.

On the Coffee Station handling of the bushes is being done, old *Lithosperma* shade is being removed where it is not needed, and the trees have got too big after being used as secondary shade. The crop is looking well, and leaf disease has not yet appeared.

A plot of *Cassia hirsuta* grown in the open on a piece of waste ground to supply mulch for the neighbouring Coffee, instead of being left in weed and cheddy, has been cut over in two ways. 10 cents were cut down low, and yielded 610½ lbs. of green material, while another 10 cents were cut over at a height of one foot, and yielded 731 lbs. of green material, being better grown. Analysis shows that this green material contains 64·69 % of moisture and 0·723 % of Nitrogen. Hence, the first plot gave a yield of 4·4 lbs. of Nitrogen, and the second 5·3 lbs., or acre yields of 44 lbs. and 53 lbs., respectively. The present price of a pound of organic nitrogen is 9 as. 8 pies. So the money value of the crop is Rs. 26-4-0 and Rs. 32 per acre. A second and possibly a third cutting will be obtained.

At the Rubber Experiment Station, Mooply, tapping was done daily, but was somewhat interrupted by rain. Secondary leaf-fall is spreading, and Black Line Canker, also due to *Phytophthora Meadii*, has appeared.

The tapping cut is being disinfected daily with 2% Izal solution as a preventative measure against this disease. In the green dressing plots, the ratoon crop of *Crotalaria striata* is dying owing to the excessive wet, but the ratooned *Tephrosia candida* is growing well. Work had been begun with seed selection from trees apparently resistant to secondary leaf-fall, but seed is ripening slowly.

At the Rubber Experiment Station at Tenmalai, preparations are being made to start tapping in September. Here, the secondary leaf-fall is spreading slowly.

At the Tea Experiment Station, the heavy rain has reduced the yield, and Mosquito Blight is spreading. Green dressings sown in the Tea are not germinating well, but Dadap cuttings are becoming established.

(Signed) RUDOLPH. D. ANSTEAD,

Deputy Director of Agriculture, Planting Districts.

1—viii—21.

BABABUDIN PLANTERS' ASSOCIATION.

PROCEEDINGS OF A QUARTERLY GENERAL MEETING, HELD AT CHIKMAGALUR, ON JULY 24TH, 1921.

PRESENT.—Messrs. S. H. Dennis (President), F. Hugonin, W. H. F. Lincoln, and N. Kirwan (Honorary Secretary.)

The notice calling the Meeting having been read, the Minutes of the preceding Meeting were read and confirmed.

(1) ELECTION OF HONORARY SECRETARY.—Mr. N. Kirwan was elected.

(2) MYSORE REPRESENTATIVE ASSEMBLY.—The Honorary Secretary was instructed to write and thank the Mysore Government for having granted the Association the privilege of deputing a member to the Assembly. Mr. N. Kirwan was elected member of the Mysore Representative Assembly.

(3). ANNUAL MEETING, U. P. A. S. I.—Messrs. S. H. Dennis and N. Kirwan received instructions as the Association's representatives.

(4). HOSPET-SAKRAPATNA ROAD.—Mr. Hugonin informed the meeting that the District Board had sanctioned a sum of three hundred rupees, to complete the survey of this road.

(5). SANDERSON MEMORIAL WARD.—Correspondence read, and approved.

(6). Correspondence on several matters was read, and instructions given.

(7). AUXILIARY FORCE.—It was noted with satisfaction that Mr. J. R. H. Morgan, M. C., had agreed to his name being sent in as Commandant.

(8). AMALGAMATION OF MYSORE ASSOCIATION.—The Committee were asked to meet the other Associations, and put this through.

(9). The Honorary Secretary was instructed to write to the Editor of the *Madras Mail*, and state that the members of this Association did not agree with the opinions expressed by his correspondent signing himself 'Kadur' in the issue of the 5th July, referring to 'A Forgotten Promise'.

(Signed) N. G B. KIRWAN,
Honorary Secretary.

WEST COAST PLANTERS' ASSOCIATION.

MINUTES OF A MEETING, HELD IN THE COCHIN CLUB,
ON 16TH JULY, 1921.

PRESENT.—Messrs. A. C. Morrell, Knight, Walmesley, Middleton, Messrs. Peirce, Leslie & Co., Ltd. (per Mr. Burton), and Messrs. Aspinwall & Co , Ltd. (per Mr. Martin) and E. H. Halliley.

The telegram from the Secretary adjourning the Meeting was read, but as there were sufficient members present, it was decided to hold the Meeting.

ELECTION OF CHAIRMAN.—Mr. Morrell was elected *vice* Mr. Eaton resigned.

INCORPORATION.—It was proposed from the Chair to send the following telegram to the U. P. A. S. I. immediately :—

> "Pending further instructions, postpone incorporation of the West Coast Planters' Association."

DELEGATES.—Messrs. A. C. Morrell and Walmesley were elected delegates to the U. P. A. S. I. Annual Meeting.

RESIGNATION OF ESTATES.—It was proposed by Mr. Halliley, and seconded by Mr. Morrell, that the resignation of the Kinalur and Kuttiadi Estates shall not be accepted. Carried.

INSTRUCTIONS TO DELEGATES.—The delegates were instructed to oppose the Anamallai resolution.

With a vote of thanks to the Honorary Secretary and members of the Cochin Club, the Meeting closed.

(Signed) A. C. MORRELL,
Chairman.

NILGIRI PLANTERS' ASSOCIATION.

At a Quarterly General Meeting of the above Association, held at the Collector's Office, Ootacamund, on Thursday the 28th July, 1921, the following Members were present:—

Messrs. J. Beaver Vernede, (in the Chair), G. F. Weston Elwes, B. Hawes, W. A. Cherry, W. Deane, Percy Reed, E. Sydenham Clarke, S. G. Elkington (representing Ibex Lodge Estates), Major J. B. Leslie Rogers, A. K. Weld Downing, S. C. O Reilly, C. Hercus, N. J. Stanes, R. Bake, A. N. Hearn, Geo. Oakes, L. F. Lake, and A. S. Dandison, Honorary Secretary. W. G. McFarland, Esq., I. C. S. (Visitor).

Letters regretting inability to attend were received from Sir Robt. Stanes, Messrs. P. Beaver, G. W. Hollings, and J. Harding Pascoe.

PROCEEDINGS.

THE NOTICE calling the Meeting was read.

PROCEEDINGS of the previous General Meeting, and of the Committee Meeting, held in Coonoor on the 11th July were confirmed.

ACCOUNTS.—Mr. Downing proposed and Mr. Elwes seconded that the accounts as circulated be passed. Carried.

U. P. A. S. I. ANNUAL MEETING.—Mr. A. K. Weld Downing was nominated as Mr. Vernede's substitute on the General Committee for the Meeting, and the Delegates (Messrs. A. K. Weld Downing and A. S. Dandison) were then instructed on points in the Agenda, the latter being taken item by item.

NILGIRI WYNAAD P. A.—Read letter from this Association, regarding rates of pay, and it was agreed that the Nilgiri Delegates should discuss the matter with those of the N. W. P. A. and others while in Bangalore.

NILGIRI DISTRCT BOARD.—Strong views were expressed on the delay in filling the many vacancies on the Board, and also on the muddle regarding the compounding of Toll Fees. The state of certain roads was strongly commented on. The Honorary Secretary was asked to write to the Collector of the Nilgiris pressing for immediate reconstitution of the Board, and election of our Nominees.

DAMAGE TO PLANTATION PRODUCE ON RAILWAYS.- Correspondence read, and the Honorary Secretary instructed to write to the Railway saying no further information can be given on the complaint beyond what was contained in the papers sent, and to ask for the return of these.

FOREST GRAZING PERMITS.—The resolution on this was withdrawn.

BENEVOLENT FUND.—A list was passed round, and several Members put down their names.

With a vote of thanks to the Collector for the use of the room, and to the Chairman, the Meeting terminated.

(Signed) J. BEAVER VERNEDE,
Chairman.

(Signed) A. S. DANDISON,
Honorary Secretary.

THE SOUTH INDIAN PLANTERS' BENEVOLENT FUND.

Since last issuing a summary of subscriptions to this fund, we are glad to announce three new life members :—

Messrs. H. M. Knight, H Walmesly, and C. L. McLean.

We publish below a summary of the collections from 1st April to date.

Planters' Association.	No. of Subscribers.	Amount.		
		Rs.	A.	P.
Anamallai	28	 387	8	0
Bababuddin	5	 50	0	0
Central Travancore ...	10	 145	0	0
Coorg	1	 10	0	0
Kanan Devan	33	 345	0	0
Mundakayam	2	 140	0	0
Nilgiris	5	 280	0	0
Nilgiri-Wynaad	1	 15	0	0
North Mysore	nil	... ... nil		
Shevaroys	1	 10	0	0
South Mysore	11	 130	0	0
South Travancore	14	 140	0	0
West Coast	5	 260	0	0
Wynaad	6	 440	0	0
Other donation	1	 200	0	0
Total ...	123	2,552	8	0

The summary published on June 11th showed 59 subscribers of Rs. 1,327-8-0 so that the last two months have not been so good as the previous ones. This is a position we hope planters themselves will hasten to remedy.

RED RUST.

A Lecture by Mr. Petch.

("TIMES OF CEYLON.")

Recently there has been a serious outbreak of Red Rust in many of the tea growing districts of Ceylon, and it is a well-known fact that an enormous amount of damage has been done by this pest—particularly in those parts of the Island where the rainfall is heavy.

Although the disease has been known to exist in Ceylon for about twenty years it has never constituted so serious a menace as it does to-day. Planters generally possess little or no information concerning the life history of the pest, and opinions vary widely as to the best methods of treatment.

The lecture delivered on the subject at a meeting of the Subaragamuwa P. A.—held at Ratnapura on Saturday—by Mr. T. Petch, the Government Botanist and Mycologist, who has recently devoted much attention to a study of the disease, will be, therefore, read with considerable interest.

Mr. Petch said :—

The appearance of the bushes attacked by Red Rust is perhaps only too familiar to some of you in this district. The bushes are thin : the younger branches are weak and spindly, and bear very few leaves. Sometimes the leaves gradually fall off, buds are produced which do not develop and the twigs die back. The green twigs turn grey and harden prematurely. One fairly common and conspicuous effect is the occurrence of variegated leaves —green and white, or green and yellow—more particularly towards the outside of the bush. If the affected stems are examined they will, at least in wet weather, be found to be covered with minute red hairs which are sometimes so numerous that the stem appears red. It is to be noted, however, that variegated leaves are not invariably a sign of red rust. Green and white leaves may occur on healthy tea bushes. This effect is known as Chlorosis, and, in general, it is not due to a parasitic disease. However, in the variegated leaves on bushes attacked by Red Rust the white area usually shades off into the green whereas on the other variegated leaves it is normally fairly sharply defined.

When bushes attacked by Red Rust are pruned the disease may appear on the pruned branches. If, as is the Indian practice, a few inches of red wood—which has developed since the last pruning—have been left, these stems may become covered with the red hairs, and die back to the main branches. In Ceylon, when the bushes are pruned back to the old main branches, an inch or more in diameter, Red Rust may appear on these in an almost continuous covering extending from the pruning cut backwards for a length of six inches or more; as a rule these affected branches do not produce any new shoots but die back.

UNIQUE AMONG PLANT DISEASES.

Red Rust is unique among Ceylon plant diseases in that it is caused by an alga, and not by a fungus. I apologise for inflicting the technical name alga upon you, but there is no other word which can be used. The average individual when asked what an alga is will tell you it is a seaweed, and probably a dictionary will give you the same meaning. But although seaweeds are algae there are other algae which live in fresh water, and yet others which live on damp earth or any damp surface. The green stains formed on walls exposed to wet, or on the trunks of trees where the rain water runs down are caused by minute algae. In all cases they require abundant moisture for their development.

In the tropics, especially in districts with a heavy rainfall algae find conditions very favourable, and are able to grow in situations in which they do not occur, or only occur rarely, in temperate countries. Hence we find that a large number of species grow on leaves. The majority of these are harmless, as are algae in general, but a few of them are parasitic, and amongst these is the one which causes Red Rust.

The Red Rust alga belongs to a group which have orange-coloured cell contents. To the naked eye the clusters appear red. There are two forms which occur on tea leaves, one of them superficial, and the other within the tissue of the leaf.

The superficial form appears on the leaf, usually on the upper surface, as a small red circular disc. When it is examined with a lense it is seen that the disc is not continuous, but consists of a number of sectors radiating from a central point. Sometimes some of the sectors are missing, and the alga is then more or less star shaped.

At this stage Mr. Petch produced a large scale drawing of the external epiphytic alga as it appears when magnified.

From the surface there arises a number of hairs. These hairs are of two kinds. One kind ends in a point—these are barren hairs. The other kind are inflated at the top, when they bear several peculiarly bent cells, and each of these cells produces a spore case or sporangium. Spores are formed inside the sporangium. When it is ripe the sporangium falls off, or is blown off, and, if it falls on a moist surface, it bursts and liberates the spores. Each spore is provided with two fine threads, or cilia, by means of which it can swim about in a film of water. If the sporangium has fallen on a leaf under favourable conditions it liberates the spores which germinate and grow into the typical red disc.

This form does not penetrate into the leaf, and is, therefore, comparatively harmless. It has, however, some effect on the leaf, as the leaf cells underneath it become brown. In the case of thin leaves the browning may extend right through the leaf.

Mr. Petch then produced a diagram showing a section through the alga disc and the leaf. The diagram had been copied from a figure by Marshall Ward and was, Mr. Petch explained, of interest because it showed that the leaf had made an attempt to resist the effect of the alga, by building additional cell walls in the cells beneath it.

WITHIN THE TISSUE.

The second form has the same hairs and sporangia, but its development is quite different. When the spore germinates it produces a filament which penetrates into the leaf. It causes at first a watery green, or more or less translucent spot, and in some cases this spot has the same radiating form as a superficial alga disc. These translucent spots are known in Java as oil spots.

The spot soon becomes more or less circular, and blackened and sunken. It is then visible on both sides of the leaf, and has usually a purple margin on the upper side, and a watery green margin on the lower. The alga is entirely within the leaf, chiefly beneath the epidermis, ultimately in ruptures the epidermis, and produces tufts of hairs on both sides of the leaf.

It has been customary to regard these two forms as forms of the same species That is, it has been thought that both forms are caused by the same alga which is sometimes parasitic, living inside the leaf and destroying it, and sometimes epiphytic, *i.e.*, merely living on the surface of the leaf without obtaining any nourishment from it. From what work I have been able so far to do on the subject at Peradeniya, however, it appears to me that these two forms are two distinct species, an epiphytic species, Cephaleuros mycoidea which is harmless, and a parasitic species. Cephaleuros parasitica, which is responsible for the damage done to the tea bush by Red Rust. But much more work is necessary before that can be decided.

The epiphytic form—that is the red disc—does not cause any serious injury to the leaf, and its effect is negligible. The parasitic form kills the leaf in patches, but the leaf is not completely killed by it as a result of these patches. But if it attacks the leaf at its junction with the stem, it may cause the leaf to fall. This appears to happen frequently. The spores of the alga, when it first attacks the bush, may lodge in the angle between the leaf and the stem, and produces a primary infection there, or, if the alga first attacks the middle of the leaf, and causes a diseased spot there, the spores from that spot are washed down by the rain to the base of the leaf and cause a secondary infection there.

STEMS ALSO ATTACKED.

However, if Red Rust was confined to the leaves of the tea bush it would not be a very serious disease. The trouble arises from the fact that it attacks the stems as well. The spores from the leaves are blown, or washed down by the rain into the stems, and, if the stems are damp, the spores germinate and attack them. On the young green stems the effect may be the same as on the leaf, that is, the first sign of infection is a watery green area, which subsequently blackens and produces clusters of red hairs. In generál, however, the first evident sign is a premature hardening of the twigs, which usually turn grey in patches. This grey layer is the dead epidermis of the twig. It may have died after the alga has penetrated into the stem, or it may have been killed by the alga without actual penetration. Probably in the latter case, the alga penetrates subsequently. Ultimately the alga produces its fructifications, which cover the twig with red hairs, sometimes so numerous that the twig appears red.

If the spores fall on the red wood they lodge in the minute cracks which usually occur in the rough outer bark layer of the stem, and, on germination, the alga filament penetrates into the living tissues. It ramifies between the cells of the bark and pushes them apart, with the result that the cells die. The effect of the alga extends beyond the extent of its penetration, and thus a layer of dead cells is formed, between the alga and the living tissue of the branch.

Mr. Petch then displayed, for the information of the meeting, a drawing of a section of a branch attacked by the alga.

You will notice, Mr. Petch continued, that some of the cells are coloured yellow and others green. That is characteristic of the parasitic species, which differentiates it, as far as my investigations have gone, from the epiphytic species. Beneath the alga there is a layer of dead cells of the tea branch.

Now, if the bush is grown vigorously, it may form a cork layer beneath the layer of dead cells, which cuts out the dead tissue and the parasite with it. In that case the alga dries up and dies, and only a small scar is left on the branch. But if the bush is weak its growth proves too slow to admit of that, and the alga grows through the layer of dead cells and kills off more, ultimately, in many cases, killing the branch.

That is the fact that supports the conclusion that Red Rust is a disease of weak bushes. The alga is universally distributed, but it does not become a serious parasite unless the bushes are, for some reason or other, not in a vigorous condition. If the bush is growing vigorously it can resist the attack of Red Rust.

NOT A NEW DISEASE.

Red Rust is not a new disease. It has been known in Ceylon for nearly twenty years, and in India for forty years. In India it was under investigation for about ten years, and the main facts concerning the disease are well established. As in the case of all diseases, there are outstanding points to be cleared up, but, in general they are not points which are likely to affect methods of treatment. It was a serious disease in India at the beginning of this century, and, consequently, special attention was given to it there. As a result of these investigations it has been decided that Red Rust is a disease which is only serious on weak bushes, and the methods of treatment adopted have been based on that conclusion. The methods recommended are successful, and there does not appear to be any reason for disputing that decision.

Weakness of the bushes may be due to several causes, lack of drainage, shallow soil, the formation of a hard pan, improper plucking or pruning, or want of manure or cultivation. In general the cause must be looked for in soil conditions.

The present occurrence of the disease in the Ratnapura district began in 1918. In 1919 the disease was fairly common, and attention was directed to it in the annual report of the Mycologist for that year, and in the annual report of the Planters' Association.

Some of the factors which favour an attack of red rust may be looked upon as local factors, *i.e.*, factors which can only influence a comparatively small area—for example, lack of drainage. In the present occurrence the disease is widely spread, and, if the controlling factor is the same throughout, we must look for a more general one. That, I think, is to be found in the reduction of manuring which occurred during the war. In the report for 1919, I intimated that the shortage of manures was beginning to show its effect by the prevalence of red rust, and that, I believe, is now the case. Whether the bushes have been further weakened by overplucking during the same period I leave to you.

The general treatment of fields attacked by red rust must be increased manuring. I would add increased cultivation, if necessary, but I am given to understand that cultivation has been carried on rather with an idea that it would compensate for manuring.

Bushes should not be allowed to run up before pruning, with the idea of strengthening them. If they are allowed to run up they produce a large number of shoots which compete with one another, and are weak in consequence. Nor should they be cut over with the idea of avoiding weakening the bush, as that leaves the weak outer branches. In either case the weak branches are more liable to be attacked by red rust. The bushes should be clean pruned.

In India, it is recommended that fields affected with red rust should be manured immediately after pruning with a mixture of 1 cwt. ammonium sulphate, 1 cwt. superphosphate, and ½ cwt. of potassium nitrate for light soils, or with 1 cwt. basic slag, and 1 cwt, potasium nitrate for heavy soils.

USE OF POTASH.

You will note the recommendation of potash in either case. During the war there was a tendency to regard the recommendation of potash as a German trade boom. They had the goods, and boomed them for all they were worth. And there is still a tendency to maintain that view. But, although potash was the subject of a remarkably vigorous propaganda, it does not follow that there was nothing to support it. Mycologists are agreed that manuring with potash, in general, diminishes susceptibility to disease. In the case of tea there is no doubt that it favours the development of wood, and, although the crop is a leaf crop, you cannot have leaf without a framework to produce it. Red rust is a serious disease only when it attacks the stem. Hence it is necessary to adopt methods which will favour the growth of wood. It may be noted that branch canker is again becoming prevalent on Low-country tea. That is another sign of lack of potash.

Theoretically, red rust, being due to an alga, should be readily amenable to treatment by spraying. Spraying unpruned tea, however, is scarcely practicable. Moreover, there is a special difficulty in spraying in the case of red rust, because the minute hairs make the patches on the leaf or stem velvety, and consequently it is difficult to wet them. It has been found that, after spraying, the red patches on the leaf may be still alive or killed only round their edges. But spraying pruned bushes is a different matter. As I have already stated, after pruning, red rust may attack the main stems of the bush and kill them back. It would appear, though the point is not yet proved, that the spores of the alga are already present on the stems before the bushes are pruned, and that they develop later. If the pruned bushes are sprayed before the red hairs develop, there is no difficulty in wetting the branches, and the spores of the alga are killed. When bushes which are severely attacked with red rust are pruned, they should be sprayed after pruning with Bordeaux mixture.

There is no cheap and easy treatment of red rust. Treatment means money, and at the present time, unfortunately, money is scarce Cheap treatments, such as burning over affected areas, light pruning, collar pruning, have been tried and found unsuccessful. All these leave the soil conditions as they were, and no improvement can be expected unless the deficiencies in the soil are rectified. On the other hand, the methods I have indicated, *viz.*, manuring, especially with potash, and spraying bushes after pruning, combined with manuring, have been successful.

QUESTIONS.

The Chairman (Mr. J. D. Hoare) announced that Mr. Petch had kindly consented to answer any questions which members of the Association might wish to ask.

A member asked whether shade had any effect on Red Rust one way or the other.

Mr. Petch replied that it was generally supposed that Red Rust was worse in the shade, but he did not think there was much to choose between exposure to the sun or shade protection. Red Rust, being caused by an alga, was not a fungus, and its growth and development was entirely different. A fungus grew better in the shade, but the sunlight was more favourable to the development of an alga. On the other hand conditions would be favourable to the alga in the shade, by reason of the greater dampness. It had been proved that bushes in the open were quite capable of being covered with Red Rust.

Mr. George Brown said that it seemed to him that a lightly pruned bush, by reason of its more rapid growth, would be more capable of fighting and throwing off the disease than a heavily pruned bush, with its slower growth. He quoted the case of the seed bearers, which did not appear to be very subject to the disease.

Mr. Petch did not think the analogy of the seed-bearers held. The ordinary tea bush produced shoots which were plucked, and the twigs were expected to shoot again. The seed bearers he had examined appeared to be as badly attacked by Red Rust as the other bushes, and the reason why the attack was not so noticeable was that these bushes were not expected to flush. In regard to pruning everything depended upon what one called light pruning and what one termed heavy pruning. If a few inches of red wood was left, these certainly died back. As a matter of fact he had no data whatever as to the rate of growth of shoots after pruning, and he was not aware of any information in print on this subject. Information as to whether shoots do grow more rapidly on lightly pruned than on heavily pruned bushes would be of great value. If a planter desired to undertake useful investigation work, he could suggest no better field than this. Bushes growing under exactly the same conditions would have to be pruned lightly and heavily. The number of buds would have to be counted, and the growth of the shoots measured. He would be rather surprised if it was ultimately found that the one grew more rapidly than the other. Personally he would expect, if anything, a quicker growth from the heavy wood.

A member asked what should be done if there was Red Rust all over a tea bush ?

Mr. Petch said that, when pruned, the bush should be showing Red Rust only on the leaves and the small branches. He had not heard of a case where the whole bush was covered with Red Rust. Spraying after pruning was to be strongly advocated, and the use of white-wash—particularly if it contained lime and sulphur—would kill the alga if still alive on the stem of the bush.

A member asked whether Red Rust attacked only the tea bush ?

Mr. Petch replied that Red Rust attacked mango and cocoa trees, and was to be found also on rubber trees. It killed twigs on the mango and cocoa trees, and there was quite a lot of it on some cocoa estates. In the case of rubber trees only leaf spots appeared to be produced, and sometimes a tree which had been rather badly attacked would be quite all right again after wintering.

On the call of the Chairman, a very hearty vote of thanks was accorded Mr. Petch.

Mr. Petch replied that he was always pleased to attend planters' meetings when possible. It was a pleasure to meet in person men with whom he was constantly corresponding. Ratnapura, at the present time, appeared to be taking a deep interest in the Mycological Department at Peradeniya, if one could judge from the number of specimens sent in by planters. He apologised for the delay in replying to those who forwarded these specimens, but explained that some difficulty was being experienced on the railway, which led frequently to a delay of as much as ten days or a fortnight.

THE SELECTIVE CULTIVATION OF RUBBER.

A Paper by Dr. A. A. L. Rutgers at the International Rubber Conference.

The first paper read at the conference in connection with the Rubber Exhibition was entitled, "The Selective Cultivation of Rubber," by Dr. A. A. L. Rutgers, Director of the General Experimental Station of the A. V. R. O. S., at Medan, Sumatra.

Dr. Torrey, opening the proceedings, regretted that nothing had come through from the mycologists, from whom they had hoped to have a contribution. There was also the usual regret that those engaged in the rubber business were so conservative and secretive. It was very difficult to get their manufacturing friends to come forward and discuss the various technical problems which they encountered in converting crude rubber into the various articles of manufacture which they supplied. But those were things about which it did not pay to be impatient. In the course of time the rubber business would realise the benefit of open discussion, just as the steel trade had realised the benefit of a full and free discussion of their difficulties.

Dr. Rutgers not being present, the paper was read by Dr. O. de Vries, as follows :—

The selective cultivation of rubber has been neglected for a long time, and even now the majority of planters show little interest in it. The technical advisers of the rubber industry have more than once insisted upon the urgency of research work in this direction, but up to now we find only plans and schemes for such work published in the tropical agricultural press, while results of actual work are lacking. In the Netherlands East Indies, however, since the Rubber Congress at Batavia in 1914, a good deal of work has been done, and some practical results have been recorded.

In Java, Dr. Cramer has been importing seeds of different Hevea species for future breeding and hybridisation experiments ; and, at the same time, the well-known planters, Hamaker and Bodde, have undertaken practical work on their estates. Hamaker specialised in seed selection and selective thinning ; while Bodde worked more on vegetative propagation by budding. Both started from the fact that a rubber plantation consists of a majority of low-yielding and a few high-yielding trees. Obviously these high yielders should become the parent-trees for selective cultivation.

The General Experiment Station of the A. V. R. O. S. (General Association of Rubber Planters on East Coast of Sumatra) was opened in January, 1917. From the beginning the selective cultivation of rubber has been one of the most prominent subjects on its programme. Since 1918 a special botanist, Dr. Heusser, has devoted all his time to this kind of work.

It was clearly recognised at the start that the selection must be worked along two lines. In the first place seed selection, which should result in the production of a more highly productive variety of tree, which in turn could be propagated by seed, but the difficulty with this method is that so much time is required. It will probably be two or three generations before a constant form that breeds true will be isolated, and companies opening new areas want seeds here and now. Therefore the second method, propagation by budding, has been followed at the same time. If it is found that the superior qualities of high yielding trees remain intact after budding their scions on seedlings, this method makes it possible to plant at once large areas with descendants of the best trees of our present plantations.

EXPERIMENTS AND RECORDS.

Experimental methods have been worked out on both these lines. The fundamental problem in both cases was to make sure which trees are the best ones on each estate. To this end crop records have been taken from many of the best trees on a number of the older estates on the East Coast of Sumatra, the records of some of these trees reaching back as far as 1916. The Experimental Station sends pedigree books and measuring glasses to such estates as desire to keep their parent-trees under regular observation. The very best trees are entered in the pedigree book of the Experiment Station, and used for the breeding experiments.

The work done up to now, by the Experiment Station and by the planters on the East Coast of Sumatra, may be summarised as follows :—

Several thousands of valuable parent-trees have been under observation for at least two years. In some cases small areas in new clearings have been planted with seeds of individual mother-trees, the seeds of each mother-tree being kept separate. On other estates the parent-trees have been used for making buddings in the nurseries, and in 1920-21 hundreds of acres are being planted with budded stumps.

The Experimental Station has been using some of the best mother-trees for starting seed gardens. In 20 different places, far away from existing rubber plantations, small seed gardens have been planted, each with buddings from two different parent-trees. It seemed necessary to use two different parent-trees for each seed garden, as self-fertilisation is very seldom encountered in Hevea trees. Some of the seeds from these seed garden will be selected for a second generation, while the bulk of it will be available for such estates as may be planting new clearings.

Vegetative propagation by buddings is expected to give results almost immediately. Seed selection, on the other hand, is a slower process, but promises to reach a higher standard at the end, and therefore a good deal of work has been spent in this line of investigation. Artificial cross-fertilisations and self-fertilisations have been made on a large scale. The difficulty is that the flowers are high up in the tree, and not easy to reach. Still, Dr. Heusser succeeded during the last season in making about 8,000 artificial fertilisations, which yielded a little over 2,000 seeds. Twenty different parent-trees were used, and 35 combinations of these 20 trees. In five cases self-fertilization proved to be impossible, and in one case only 28 seeds were obtained. The seedlings of these 35 combinations will be planted separately, and the next step (after five years) will be to select the best trees from the best combination, as parent-trees for a further selection.

BASIS OF THE WORK.

The basis of this work is wholly a theoretical one. Propagation of the highest yielders by seed and by buddings is advocated, because everywhere else in the world these methods have been a success in agricultural work. Whether the same will be found to hold true in case of rubber, and to what extent production can be increased by selection, nobody can say at present. The general opinion, however, is that in some way or other a considerable increase of the crop can be brought about by selection. Actual figures of the results attained by either of the methods mentioned are either scarce or altogether lacking.

The first areas planted with buddings are only three years old. Tapping results are to be expected in 1921. It is expected that these results will confirm the theoretical point of view, and show the superiority of budded Hevea trees. It is, of course, possible, however, that the influence of the root system is such a dominating factor that budding has no effect at all. Should this be the case the next thing to be tried will be marcotting the buddings before planting, in order to develop a root system tracing its origin from the same superior parent tree. Experiments in this direction met with a complete success, and small experimental areas have been planted to show the influence of the root system on the production of latex.

As to seed selection, figures are already to hand which show the beneficial effect of work in this direction Hamaker published some figures relating to his selected seed garden ; Holle published figures on the tapping of Bodde's selected seed gardens ; and Dr. Heusser, of the General Experimental Station of the A. V.R. O. S., will publish shortly figures obtained from the selected seed gardens on Byawak Estate. The results are the same everywhere ; the production is higher than could be expected from trees of the same age grown from seeds taken at random. The five-year-old trees at Byawak attained an average daily production of 10·5 grammes.

It will be seen that these investigations, as initiated and undertaken in Java and Sumatra, are only in their infancy, but results obtained up till now show that even in the first generation seed the selective cultivation of rubber trees leads to higher production. This result is the more important because in the cases described, only the mother-tree was a high yielder, while the pollen was of unknown origin. Surely better result are to be expected, when both parent-trees are high yielders, as was the case in the artificial fertilisations which were carried out. No one can say at this moment what results will be reached in this way when selection has been continued for several generations. It seems not extravagant to predict results similar to those obtained in Java on cinchona trees, where the planters doubled the production from the individual trees by careful and continuous selection.—(*India Rubber Journal.*)

LETTERS TO THE EDITOR.

(*The Planters' Chronicle is not responsible for the opinion of its Correspondents.*)

R. O. C. No. 561 of 1921.

Office of the Deputy Director of Agriculture,
Planting Districts, Lawley Road P. O.,
Coimbatore, 2nd August, 1921.

Picking of Coffee for Quality.

Sir,—In your last issue, I note that a correspondent has reopened the much discussed question of the quality of coffee, and how this may be obtained. If he will turn to the Books of Proceedings for 1899, page 35; 1903, pages 71, 78 and 112; and 1904, page 55, he will find a lot of information on the subject and many suggestions. I doubt whether we have learned much new about it since those days, with the possible exception of methods of artificial drying.

2. The consensus of opinion appears to differ with your correspondent. That is to say, authorities like Graham Anderson and Fletcher Norton, with many years' experience behind them, incline to the view that the cherry should be picked fully ripe (not too ripe or foxiness is produced) and that this ripeness should be as even as possible if a good sample is to be obtained. That is to say, ripe and unripe cherries should not be mixed.

3. Personally, with much less experience, I agree with this view. A more regular fermentation is produced. It has been assumed by some that fermentation is merely for the purpose of rendering the gummy matter soluble, so that it can be washed off the parchment, and that it has no effect upon the bean itself. I am not at all sure that this assumption is a correct one, and I think that the process of fermentation of coffee needs more study by a Bacteriologist. Now that the Madras Agricultural Department have got an Agricultural Bacteriologist on the staff, in the person of Mrs. Norris, it might be possible to have this matter studied. In this connection, I would remind Coffee planters that Mrs. Norris will be present at the Annual Meeting of the United Planters' Association of Southern India this month, so that there will be an opportunity to discuss the subject with her.

4. I fear I have no new knowledge to add to this much debated question of quality, and I have only ventured to write this letter because of one remark of your correspondent, *viz*., "Many years ago when this same question cropped up, I decidedly improved matters by drying under partial shade until the bean had set its colour, and when put into the sun, this colour was retained. That crop was only 12 tons, and now I have to deal with 80 tons and over, and in view of the present day shortness of labour one has no time to play about with it in this manner."

5. Now, I went into this matter of the drying of coffee on the estate very thoroughly some years ago, and I would refer your correspondent to the Book of Proceedings, 1911, page 46.

6. I believe that the artificial drying of coffee on the estate will do much to improve the quality, and it certainly deals with the labour difficulty, and considerably reduces the number of coolies necessary on the drying ground. "In view of the present day shortness of labour," labour saving devices of this sort are worthy of attention quite apart from the question of the improvement of quality. Mr. W. Reed and I wrote a pamphlet on the subject in 1916, which was reproduced in the pages of the *Planters' Chronicle*, Volume XI, page 373.

7. Other factors, which I think have a decided effect upon the quality of coffee, are the areas of bad patches of poor trees. The coffee from these should, I feel, be picked and cured separately till they can be replaced by good trees. Also it would pay to grade the cherries before they are pulped, so as to avoid pulper bruised beans.

8. With all these precautions, however, there are still the vagaries of the market to deal with, a market that has been known to pay widely differing prices for two identical lots of coffee taken from a bulked sample which was simply divided in half, and put up for sale in two lots. I can suggest no remedy for this. As your correspondent says, one must just bear it and grin if one can. Probably, the right reply is increased yield, and here the Hybrid Coffee will help. All bad patches and old coffee should be replaced by plants raised from hybrid seed, which is now available, as rapidly as possible.

Yours faithfully,
RUDOLPH. D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

2—viii—21.

MISCELLANEOUS.

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The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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THE LATE Mr. G. A. D. STUART, I.C.S.

The death of Mr. G. A. D. Stuart, I.C.S., Director of Agriculture, has had a particularly striking effect in Coimbatore, where we have so often had the pleasure of meeting him, socially and in the course of business, and where his connection with the Government Agricultural College and Research Institute in his official capacity, made him an outstanding figure with all those of us interested in or connected in any way with agriculture. Successive Directors of Agriculture have in the past shown their interest in the planting community by attendance at annual meetings and in other ways, but it is only within recent years that the relation between the Department and the U.P.A.S.I. has been of a really close nature. It is to the late Mr. Stuart that we are indebted for the present co-operation, which he, to all intents and purposes, inaugurated in 1918, and for which he always showed the keenest enthusiasm. Prior to his departure home on leave in 1919, he set in train the Government end of the Rubber Mycologist scheme, which has culminated in the appointment of Mr. Ashplant, and we know that he was, at the time of his death, occupied with the proposals for a General Planting Mycologist. His loss, therefore, is to be considered a particularly severe one from the Planters' point of view.

So far as one can gather, Mr. Stuart's death is unfortunately one of those cases of direct sacrifice of life on the altar of service. The times are such that men are being asked in many walks of life to do more than is humanly possible even for a fit man for any continued length of time. In this particular case we know that Mr. Stuart's health had not been at all good since his return from England yet, in spite of this, he stuck to his guns in a manner befitting the highest traditions of his service.

In him the Agricultural Department loses a highly efficient and sympathetic administrator, the planters a very close friend and well wisher, the general public a faithful and hard-working servant of the old school, whose life and death may be summed up in the one word "Service" to India.

U. P. A. S. I. ANNUAL MEETING.

The Provisional Programme of the Annual Meeting at Bangalore is given below.

CORRESPONDENCE.—All ordinary routine letters, remittances, Upasi Buying Agency Orders, etc., should *not* be addressed to me by name, but as follows :—

The Secretary,

U. P. A. S. I.,

Coimbatore.

All personal letters, urgent letters and telegrams should be addressed to me by *name*, West End Hotel, Bangalore, from the 16th to 25th.

PLANTERS' DINNER.—This Dinner, on Monday, 22nd, is for planters only, and no ladies or outside guests. The Chairman hopes that all delegates will attend. The Secretary, United Service Club, Bangalore, is kindly arranging for all delegates to be made Honorary Members of the Club for the week, and I am furnishing him with a list. If there are any other planters, not delegates, who will be in Bangalore, and who wish to attend the dinner and make use of the Club, I shall be much obliged if they will send their names to me at the West End Hotel.

The cost of the dinner will be from Rs. 3 to Rs. 5 per head according to the number present. Each diner will sign for the drinks he orders.

TENNIS TOURNAMENT.—The finals of this will be played at the United Service Club on Tuesday 23rd commencing at 4 p. m., if possible, instead of at 4-30 as in the programme below.

ADDRESSES.—Will all planters, whether delegates or otherwise, please let me know where they are staying in Bangalore, and the number of their Room if at a Hotel.

THE DANCE will be arranged for at the West End Hotel by the Manager, on Thursday 25th, to which all planters and their guests are invited.

C. H. BROCK,
Ag. Secretary.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

(INCORPORATED.)

TWENTY-EIGHTH ANNUAL GENERAL MEETING.

PROGRAMME.

MORNING. Monday, 22nd August. AFTERNOON.

MORNING.

HOUR.	AGENDA ITEMS.
10-00.	General Committee Meeting.

AFTERNOON.

HOUR.	AGENDA ITEMS.
2-30.	General Meeting Opens.
	2. Report of Executive Committee.
	1. Chairman's Address.
	Visitors.
	3. Accounts.
8-15	Dinner at U. S. Club.

MORNING. Tuesday, 23rd August. AFTERNOON.

MORNING.

HOUR.	AGENDA ITEMS.
10-00	
	5—11. U. P. A. S. I.
	12. Affiliated Associations.
12-30	Photograph.

AFTERNOON.

HOUR.	AGENDA ITEMS.
2-30.	36. Report of D. D. of A., P. D.
	Dr. L. Coleman's Address.
	37. Rubber Mycologist.
	38. General Mycologist.
4-30	Tennis Tournament Finals.

MORNING. Wednesday, 24th August. AFTERNOON.

MORNING.

HOUR.	AGENDA ITEMS.
10-00	13—17. Legislation.
	18. Duties and Taxes.
	19—22. Communications.

AFTERNOON.

HOUR.	AGENDA ITEMS.
2-30	26—31. General.
	32 & 33. Tea.
	34. Rubber.
	35. Coffee.

MORNING. Thursday, 25th August. AFTERNOON.

MORNING.

HOUR.	AGENDA ITEMS.
10-10	23—25. Labour Department.
	39. Budget & Finance.
	Presentation Tennis Trophy.
	4. Elect Chairman and Auditors.
	General Meeting Closes.

AFTERNOON.

HOUR.	AGENDA ITEMS.
2-30	General Committee Meeting.
4-00	Executive Committee Meeting.
9-30	**DANCE.**

NOTE.—Any Items not completed will be postponed to Thursday afternoon, and in the event of this being so, the General and Executive Committee Meetings will be adjourned until Friday morning if necessary.

THE SCIENTIFIC DEPARTMENT, U. P. A. S. I.

Value of Green Dressings. Tephrosia Candida.

In Dominica, British West Indies, in an experiment carried out to test the value of a green dressing for Limes, *Tephrosia candida* (Boga Medeloa) was a very marked success. In this experiment, three plots of Limes of the same age were treated as follows :—

1. An annual application of 2 lbs. of organic nitrogen per tree, together with a green dressing consisting of Horse Beans (*Canavalic* sp).
2. An annual application of 2 lbs. of organic nitrogen per tree, together with a green dressing consisting of *Tephrosia candida.*
3. An annual application of 2 lbs. of organic manure per tree, and no green dressing.

The Limes were young, and the following results were obtained for their first two years in bearing :—

PLOT	1	2	3
	With Horse Beans. Yield in barrels of lime per acre.	With *Tephrosia candida.* Yield in barrels of lime per acre.	Without Green dressing. Yield in barrels of lime per acre.
1917-18 ...	34	33	24
1918-19 ...	72	139	54

In the both years the benefit of the green dressing is very apparent. In the second year *Tephrosia* showed its superiority over Horse Beans in a very marked way, and this is attributed to the fact that the former gave a better cover when it was established, and a heavier crop of organic matter, the Horse Bean being a much smaller plant.

This is only one of many examples which can be given of the benefits to be obtained from the use of a green dressing, and will give our still ardent clean weeders something to think about. Rubber and Tea planters who are using *Tephrosia candida* will be pleased to see that it is showing up so well in other countries.

Charcoal.

The Indian Forester says that, as there appears to be a renewed interest in the manufacture of charcoal on a commercial scale, it may interest some to know that literature describing some new plant has just been received by the Forest Economist, and may be obtained from him on application.

The plant described includes a carboniser by which charcoal is produced from small wood, mill waste, etc., while the waste gas is made available for power purposes. This plant also allows of the recovery of potash from the charcoal.

A complete power gas outfit for utilising wood waste, cotton stalks, and other waste vegetable material is also shown in detail.

The plant might be useful in any scheme for exploiting forest reserves, as suggested some time ago.

(Signed) RUDOLPH. D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

Report No. 10.

The Deputy Director of Agriculture, Planting Districts, was at headquarters during the week engaged upon routine office work. Rain has been general. At Coimbatore, rain fell every day, and the temperature has fallen.

2. *The Experiment Stations.*—At the Coffee Station, (Coorg) a week of heavy rain was experienced, a total fall of 13·67 inches being recorded, with a maximum of 3·32 inches on one day, and four days with over 2 inches. This was accompanied by wind, which has done a certain amount of damage to shade trees. Handling and centring has been completed, and the removal of old *Lithosperma* shade which had become too big. 145 plants of permanent shade have been put out, consisting of the following species:—*Terminalia belerica* (Tare), *Dalbergia latifolia* (Bite), *Albizzia odoratissima* (Bilwara) and *Pterocarpus marsupium* (Honne) *Lithosperma* shade has been removed from the nurseries. The green manure plots have been given a preferential weeding. Leaf disease has not apparent, but with the wet condition, Black Rot is feared.

At the Tea Experiment Station, (Peermade) a week of heavy rain and high wind has been experienced. A total of 25 56 inches of rain was recorded, with one day of 5 inches, and on no day less than 2 inches. These conditions have reduced the yield, and a total of 181 lbs. of green leaf were obtained from 4·75 acres. The high wind has reduced the Mosquito Blight attack. Hand catching is being done. Green manure seeds still show poor germination.

At the Rubber Experiment Station, (Mooply) a total of 10·54 inches of rain was recorded, and high wind has been experienced. The climatic conditions interfered with tapping, but a yield of 62½ lbs. of wet rubber and 17 lbs. of wet scrap were obtained from 1,262 trees. Seed selection work is proceeding: Seed has been selected from eight trees and put down in a nursery. Pits have been opened to receive the resulting plants, 2½ feet deep and 2 feet square, spaced 17 feet apart.

At the Rubber Experiment Station (Tenmalai), a total of 11·43 inches of rain was recorded. Secondary leaf-fall is on the increase.

(Signed) RUDOLPH. D. ANSTEAD,
4—viii—21 Deputy Director of Agriculture, Planting Districts.

INDIAN TEA CESS COMMITTEE.

We publish below an abstract of the Annual Report of the Indian Tea Cess Committee for the year ended 31st March, 1921 :—

The Cess was imposed by Act IX of 1903 for a period of five years, and it came into operation on the 1st April, 1903. It was extended for a further period of five years from the 1st April, 1908 ; it was again extended, with effect from the 1st April, 1913, for a third period ; and for a fourth period of five years from the 1st April, 1918.

Indian Tea in India.

At the half-yearly meeting of the Committee, on the 12th March, 1920, the following resolution was unanimously adopted :—

"That a sum of Rs. 4½ lakhs be expended on advertising Indian tea in India during the year 1920-21."

Mr. Harold W. Newby continues to serve the Committee as their Commissioner for India, and he was in charge of the work throughout the year. At the half-yearly meeting on the 30th July, 1920, and again at the meeting on the 12th March, 1921, he explained his methods and summarised the results that had been achieved so far. As his statements at the meetings have been published, there is no need to reproduce them here. It will suffice to say that the work has now so far progressed as to enable operations to be discontinued in a number of the larger towns. At the meeting on the 12th March, 1921, Mr. Newby mentioned that no fewer than sixty-five towns had, at that time, practically attained the condition when no further effort on his part in respect of them was necessary. In a number of these, work had already ceased, and in the remainder it was about to cease. At the Jute mills, and at the coal mines also, the work has been so far successful as to enable it to be stopped, except for occasional inspections by members of the Commissioner's staff. The work continues in a very large number of towns, on the railways, and in the Indian Army.

At the meeting on the 12th March, 1921, the Committee had no alternative but to reduce the grant for the year 1921-22 to Rs. 4 lakhs. This reduction thèy greatly regretted, but, in view of the curtailment of the exports of tea, and the consequent shrinkage of the cess revenue, they saw no other possible course open to them. In consequence of this reduction in the sum available for expenditure on his work, Mr. Newby was compelled largely to stop the following special branches:—(a) demonstrations at fairs, *melas*, and other large gatherings; (b) the opening up of tea rooms in the Indian Army; the opening of new arrangements on the railway system; and (c) experimental work in the *hats* and villages.

The Enhancement of the Cess.

During the past year no propaganda work of any description has been undertaken by the Committee elsewhere than in India. As will be understood from the preceding paragraph, the available funds were insufficient to justify any attempt being made in any other country. In the last annual report the committee referred to a proposal for the increase of the cess. This increase, for which they had strongly pressed, was agreed to by the Government of India, and a Bill amending the Cess Act of 1903 was passed by the Legislative Assembly of India on the 19th February, 1921. After passing through the Council of State, the Bill became law on the 1st May, 1921. It so amends the Act as to make the maximum rate, at which the cess is leviable, 8 as. per 100 lbs. of tea exported (or roughly 1 pie per lb.) instead of ¼ pie per lb. As was stated in the report for last year, it was not at any time the intention that the maximum rate of 8 as. should be levied immediately. For, it was estimated that a rate of ½ pie (roughly 4 as. per 100 lbs.) would be sufficient for the present. And, with effect from the 1st May, 1921, the cess is being levied at the rate of 4 as. per 100 lbs.

The financial position of the cess is such at present, by reason of the curtailment of exports, that the Committee do not anticipate being able to begin work in any country other than India for about another year. At their meeting on the 12th March, 1921, they resolved, to start operations in France and Belgium as soon as funds should become available. Mr. Newby is at present in Europe, and the Committee of the Indian Tea Association (London), have been asked to confer with him in regard to France and Belgium. It has been suggested that a campaign might be initiated in Russia, but so far it has not been found to be possible to formulate any practical proposals in this connection. As regards America, the position of the scheme put forward by the Tea Association of the United States appears to be pretty much the same as when the Committee's last annual report was written. No progress has been apparently made with it, and for the reasons which were mentioned in the last report the Cess Committee are not disposed to contribute to it in behalf of India.

At the half-yearly meeting of the Committee (held on 29th July), the above report was presented by the Chairman, Mr. R. Graham, who said:—

As usual at this half-yearly meeting the business before us is to consider and pass the report of last year's work, that is of the year ended 31st March last, and also the accounts for the same period. A draft of the proposed report is in your hands, and you will now have an opportunity of amending it, if this should be considered necessary.

I am sorry there is not more to record in the report, as in our present circumstances one would like to see our propaganda work more active, as what we sorely need is an extension of our markets and an increase in the consumption of tea. The measure of our operations, however, is limited by our resources in money, and as you will see from the accounts we have only been able to accomplish what we have done by borrowing money from the Imperial Bank of India. The position in this respect was explained by the Chairman on the occasion of our meeting on 12th March, and it is not therefore necessary for me to go over the same ground in detail. As matters stand at present our overdraft with the Bank amounts to Rs. 48,362, and this will be immediately increased to Rs. 81,362, as we have a payment of Rs. 33,000 to make for the monthly requirements of the Cess Commissioner in India. A comparison of the statements of accounts with that submitted for the year ended 31st March, 1920 shows that the sums received from Customs Officers amounted to Rs. 3,66,439-1-4 in 1920-21, as against Rs-4,87,108-12-0 in 1919-20. This falling off in revenue is due in part to the smaller crop harvested last year, and also to the slower rate of shipment, which left large stocks in hand at 31st March. The crop from North and South India works out at about 344,500,000 lbs. as against 385,000,000 lbs. in 1919-20, and teas awaiting shipment, at 31st March, amounted to 63,000,000 lbs. as against 38,000,000 lbs. last year. The figures relating to crop have been obtained from the Director of Statistics, and are understood to be final.

The figures relating to stocks, however, are only approximate as stocks at South Indian ports have been estimated.

At the last meeting of the Committee, the Chairman informed you that the Cess Act had been amended to provide for a maximum cess of 8 annas per 100 lbs. being levied on tea exports, and since then the Government of India, by notification, have raised the rate to be collected as from 1st May last to 4 as. per 100 lbs., or approximately ½ pie per lb., as against the old rate of ¼ pie per lb. This means that the rate of cess has been doubled since 1st May, and an improvement in our financial position may therefore be looked for. We had hoped that this might have been evident even now, but exports have been curtailed by the stoppage of shipments from Chittagong, due to the strikes at that port, and on the Assam-Bengal Railway. Further, it was necessary to exempt from the higher rate of cess, teas purchased prior to 1st May, and shipped subsequent to that date, on which the lower rate only had been allowed to the buyer. It will, therefore, be some little time yet before we will be able to relieve ourselves of debt, and start to build up a fund which will provide against a recurrence of the present unsatisfactory position (that of being in debt) and enable us to extend our operations. After this experience, the Committee should see to it that a reserve fund is created against any possible shortage in the collection of the cess, so that debt may be avoided.

In his remarks at the meeting in March, the Chairman said that the grant for work in India might be increased at this time if the road ahead was more clear, but prospects are not such as to justify us in recommending an increase at the present time, and in any case the first essential, as has already been indicated, is to get rid of our debt. An estimate of this season's crop seems to be impossible, and unseasonable weather and strikes have already considerably upset forecasts, and the North Indian crop shows a shortage, at the end of June, of 29,000,000 lbs. when compared with last year's figures. We have no statistics in respect of South India, but there is every indication that the crop from these districts will also be short, and in the circumstances it is advisable for us to go cautiously in the matter of expenditure until we have a reserve in hand.

Having dealt with the matter of our funds, I have now to ask your attention to the progress of our propaganda work in India, which is all we have in hand at present. We generally have Mr. Newby with us on these occasions to report on the work done, but as he is at present on furlough I have been supplied with the following note by Mr. Harpur, who is acting for Mr. Newby:—

> "At the half-yearly meeting on 12th March last, Mr. Newby detailed the progress that had been in the different branches of work up to that date; he also outlined the programme that would be adopted after that date, in consequence of the curtailment of funds, and his programme has not been deviated from.
>
> The experimental work at the *Hats* has been discontinued; work in the coal fields has also been discontinued; our assistance in connection with Military work has mostly been restricted to inspecting and establishing the existing tea rooms, but in response to a special application, we have assisted one additional Unit.

Of the towns where work was then on the point of being dropped, 5 in Behar and Orissa, and 31 in Bengal have since been dropped, and this completes Bazaar work in Bengal. It is a matter on which we can congratulate ourselves that the time at which this work could be discontinued without detriment coincided with the time when it was found necessary to curtail funds for propaganda work in India.

Our efforts are now concentrated on Bazaar work in towns with a population of 20,000 and over in the Punjab, United Provinces and Southern India, and on railway work.

As regards the Bazaar work, the present position in the different provinces is shown on the printed statements which have been supplied to the Members of Committee. Statement No. 1 shows the number of towns with a population of 20,000 or more inhabitants dealt with in the different provinces, and the numbers remaining to be taken in hand, while statement No. 2 shows the population of these towns. It will be seen that, as regards population, the work done comprises about half, and the bulk of our work now lies in South India, the United Provinces, Central Provinces, Bombay Presidency and Rajputana. Work has been completed in Bengal, and is nearly finished in Bihar and Orissa.

As regards railways, we have completed our work on the Eastern Bengal Railway, and we are now organising arrangements on the South Indian Railway, East Indian Railway, and the Oudh and Rohilkand Railway.

Before taking over the supervision of the work on the East Indian Railway and Oudh and Rohilkand Railway, although the arrangements were very crude, some tea was available for the Indian Passengers, so it is not possible to show the increase for which we can take credit, but on the South Indian Railway, where practically no tea was available, we find from the figures supplied to our assistants by the contractors, that the sales at present exceed 1,50,000 cups per month."

Nothing would be better indicative of the progress of our work in India than figures showing the quantity of tea consumed; but unfortunately reliable figures in this respect are not available. With the kind assistance of the Collectors of Customs in Calcutta, Bombay and Madras; the Traffic Manager, Port Commissioners, Calcutta, the Superintendent of Jetties, Chittagong, the Indian Tea Association and the Director of Statistics, to whom our cordial acknowledgments are due, we have been able to arrive at an estimate of the position, which gives us the following figures. During the three years before work was taken up in India, the quantities available for consumption were:—

1912-13	...	20,787,366	Average 20,792,116 lbs.
1913-14	...	22,263,164	
1914-15	...	19,325,819	

whereas since work was undertaken in India, the figures are:—

1915-16	...	31,105,038	Average 39,261,360 lbs.
1916-17	...	38,968,047	
1917-18	...	42,122,166	
1918-19	...	50,446,567	
1919-20	...	29,757,069	
1920-21	...	43,169,263	

One has only to look around, however, travelling about the country, to find evidence that the consumption of tea in India is on the increase, and we know that on many occasions recently the Indian buyers have been the chief support of the market here.

As regards the extension of our work, you will notice from the report that the direction this will take has not yet been decided on. Doubts have been expressed as to the advisability of trying to convert a coffee-drinking country like France into a tea-drinking country, and our failure in this respect in America is cited as an argument against any further attempt. Personally, I am doubtful if our experience in America can be regarded as a satisfactory argument against the proposal to start work in France, but it certainly makes it necessary to give the whole matter very careful consideration, especially as the London Committee were not in favour of the scheme. As you are aware, the London Committee suggested that work should be begun in Russia instead of France, and although later on they withdrew this suggestion, we thought it advisable to re-open the whole matter with them, and we have asked them to discuss the question with Mr. Newby while he is at home and thereafter favour us with their views. We have still to hear from them on the subject, and the members of the Committee will be informed in due course of what transpires. As regards America, we still continue to hear from time to time from the Association there regarding their scheme for promoting the sale of tea. This, so far as we can see, remains the same in form as when the Committee last met, and until a feasible scheme is put forward the Executive Committee cannot see any reason to alter their previous recommendation to decline to contribute to it. In any case we have no funds available, but it is unfortunate that some arrangement cannot be come to, as America always seems to me to offer a good field for suitable propaganda.

In conclusion, I would like to take this opportunity of thanking our Secretary and his staff for all the assistance they have rendered so cheerfully and willingly, and to Mr. Newby and his staff our thanks are also due for the good progress made with work in India.

Mr. Pinches seconded the resolution adopting the report, which, on being put to the meeting, was carried unanimously.

LETTERS TO THE EDITOR.

(*The Planters' Chronicle is not responsible for the opinion of its Correspondents.*)

The R. G. A. Producers' Corporation.

Sir,—Now that the Dutch Rubber Growers have refused to participate in the two million scheme of the R. G. A., we will make a guess what the actual reasons, (may be not outspoken), are that prompted them to refuse.

As is generally known, Java, the Dutch East Indies' most important and oldest rubber containing island produces about the cheapest (with Ceylon) of the world.

Sumatra, though growing a not unimportant amount of rubber, has still young estates, and a good deal of these have, besides their rubber, either tobacco, coffee or cocos palm to fall back on when rubber fails. Besides, a certain percentage of the Sumatra Rubber grows for the factories in America, and does not come in the open market.

Now what is the two million scheme? When all is said and done the scheme is in its naked form a *trust*, which aims at keeping up the price of rubber in an artificial way, and thus is a violation of the law of supply and demand, and hence an unhealthy situation.

Undoubtedly, the scheme would force up the price of rubber and give the long prayed for relief. But it is nearly certain that that relief would only be temporary, because what would be the immediate result?

In view of the fact that the R. G. A. is mainly a representative body of English concerns, and that the U. S. A. consume about 2/3 of the world's crop, the evident result will be a counter trust from the American side, and America being a past master in trusts, will very soon have gained her point. The big, raw produce users will join, and their scheme won't be a two million one, but a twenty million scheme. They will buy or gain control over as many Estates as possible, with the consequent loss of revenue to England and the thousands of Englishmen who will be gradually replaced by American men.

When America controls enough Estates to cover her own wants, then the rest of the rubber concerns will have to sell their produce at the same price as for what the America controlled Estates produce their rubber because a higher price can't be made, as the European rubber users cannot compete with America.

If still the two million concern tries to keep up the price by burning rubber, restricting output, etc, the only result will be that the rubber users outside America go to the wall, and then there won't be any market at all, with even a more severe slump than we are now experiencing. The only way to put rubber again on a sound footing is to let the rule of supply and demand work through. The inevitable result will be a severe thinning out, but only through that we will get a lasting relief. To keep an Estate healthy we thin out, so why not the same with companies. And the speedier this thinning out takes place the better for all concerned.

And now we have not even considered the demoralising influence of the scheme, knowing beforehand how much rubber will bring up. But better leave this matter alone, as it would take too much valuable space, and it is a sad theme to talk about. No!, better a healthy competition regulated through the eternal law of supply and demand.

Yours faithfully,
W. HOEVERS.

Si Vis Pacem, Para Bellum.

Sir,—It is not necessary to expatiate here on the Industrial unrest that prevails in this country at the present time; but what is very necessary to fully realise is that the Indian Bolshevist is now assiduously exploiting the economic disturbance for his own political ends; and these ends are known from experience to be wholly destructive. The handwriting is already on the wall; and it will be wise for the Planting Industry of Southern India not to thoughtlessly ignore the warnings conveyed by recent events in Assam and Darjeeling. They must wake up from the political lethargy of the past, and take a real live interest in every movement around them. It will not be enough to pass smug resolutions on general lines, and wait till something happens. As the old Latin tag aptly expresses it, "If you wish for peace, you must prepare for war." This applies to all alike, the Indian as well as the British planter in these parts, for all must sink or swim together in the coming struggle against Bolshevist activities. It is, therefore, earnestly hoped that this subject will loom large on the Agenda of the U. P. A. S. I. at the approaching Annual Meeting; and that the Delegates will not disperse without a well-planned definite programme for the future.

ACTION FRONT.

Picking Coffee for Quality

Dear Sir,—"Quality" has made a mistake in stating that he was told that the reason his Coffee fetched such bad prices was because he did not pick ripe enough.

This is not so. He was told that the under-ripe, green and diseased berries in his picking were the principal cause of his poor sample, and consequently low prices.

"PART OWNER."

The Picking of Coffee for Quality.

Sir,—Mr. Anstead, in his letter under above heading in your issue of the 6th August, in para 8, says, "Probably the right reply is increased yield, and here the Hybrid Coffee will help. All bad patches and old coffee should be replaced by plants raised from Hybrid seed, which is now available, as soon as possible." Is this not advocating rather a dangerous policy, as by this means one is liable to get estates consisting of a mixed variety of plants, and as all will have to be picked and cured together, surely one stands a fair chance of having to place on the market a mixed grade, and if there is one thing more than another that the buyer will fight shy of it is mixed grades, as these as a rule never roast well, and their liquor is neither one thing nor the other, *i. e.*, the admixture of Hybrid beans may do away with the sample being classed as Mild Coffee, as most of the Hybrids have a distinct flavour of their own.

I conclude that Mr. Anstead means that, as most estates have unremunerative areas, by replanting these an increase of yield can be obtained, though I think that it has yet to be proved that Hybrids are bigger producers than other varieties, especially when planted in inferior land. I acknowledge that the Hybrids from their look compare most favourably with other Coffee when growing on estates, but, are they going to behave like so many other varieties of Coffee, Maragogipe, Robusta, etc., which, when introduced, either fail to crop, or else the quality of bean produced is so inferior that they do not pay to grow?

Yours faithfully,
E. W. R.

ROOMS IN BANGALORE.

A Planters' Widow is opening the "Priory" to paying guests from the 18th August. Most centrally situated and every care and comfort assured.

For terms, apply to :—

Mrs. GILBERT,
"The Priory,"
12-B, St. Marks' Road,
Bangalore.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

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Edwin Vincent, Managing Editor, Coimbatore.

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THE ANAMALAI WEEK AT COIMBATORE.

This fixture, inaugurated last year, has been repeated this week, and judging by its success has become an event to which we may look forward each year in future. Certainly, to those taking part in them the events were of intense interest, and everyone seems to have agreed that the meet was equally as successful as that held last year. Strangely enough the result was precisely the same as on the previous occasion. The Anamalais won the cricket, but Coimbatore won the Tennis and all the remaining events.

A start was made on Thursday, 11th August, with a very successful Dinner and Dance at the Club, the Salem Police Band being in attendance. On Friday morning the Tennis singles were played, and Coimbatore beat the Anamalais in 8 matches out of 9. In the afternoon Coimbatore repeated the performance by beating their opponents in the first 5 matches of the doubles.

By special arrangement with the Ootacamund Amateur Dramatic Society, there was a performance at the Variety Hall in the evening by "The Blinkin' Owls' ' in aid of the Local Y. M. C. A. and Girl Guides' funds. Coimbatore and the planting visitors may both consider themselves lucky to have thus been given an opportunity of seeing this entertainment, which has met with such success in Ootacamund.

On Saturday the cricket was played in Mr. Narasiah's compound. The Anamalais, batting first, made 165, Coimbatore being able to respond with 86 only. This was largely due to Sullivan's bowling, as will be seen from the appended analyses. He did the hat trick, all clean bowled, in the course of the innings. The Anamalais had another knock in the evening, as the match proper finished rather early. On Saturday evening the visitors gave a Dinner and Dance at the Club. It was a highly successful function, and during the dance a start was made in the other rooms with Bridge. Sunday was a blank day, and on Monday Coimbatore beat the Anamalais at Golf, Russian fleas and Bridge. In the afternoon there was a skittle Gymkhana organised by Mr. Fraser, in aid of the Girl Guides' funds, and its success was largely due to his untiring efforts.

The Anamalais men returned on Tuesday morning after a third Dinner and Dance at the Club, tired no doubt and weary, but nevertheless having enjoyed themselves thoroughly. The Coimbatore team and residents were very glad to see them again, and sincerely hope they will repeat the visit next year.

Appended are the results :—

Cricket.

ANAMALAIS.

	1st Innings.		2nd Innings.	
J. H. B. Sullivan	c. Anstead b. Fraser	42	Not Out	89
E. G. F. Maule	b. Blake	38		
A. V. Danagher	c. Blake b. Anstead	11	c. Fraser b. Anstead	3
V. J. Wheeler	l. b. w. b. Blake	4	Not Out	7
D. Cooper	b. Blake	19		
H. H. Stuart	b. Anstead	15		
O. M. Hetherington	c. Vincent b. Blake	15		
E. L. Koechlin	b. Blake	0	c. Patient b. Anstead	2
G. W. Wallace	b. Blake	0	b. Blake	0
Tyringham	b. Anstead	3	c. Mackay b. Blake	2
T. Davenport	Not Out	0	b. Anstead	1
	Extras...	18	Extras	3
	Total...	165		107

BOWLING ANALYSIS.

	1st Innings.				2nd Innings.			
	O.	M.	R.	W.	O.	M.	R.	W.
Blake ...	30	10	42	6	12	2	20	2
Anstead ...	22, 3	7	49	3	6	0	38	3
Mackay ...	5	1	17	0				
Wilson ...	7	1	20	0	1	0	3	0
Dyson ...					3	0	21	0
Fraser ...	7	1	19	1	3	0	22	0

COIMBATORE.

C. Fraser	b.	Sullivan	... 19
R. D. Anstead	b.	Sullivan	... 0
T. I. S. Mackay	b.	Cooper	... 4
W. H. Clare	b.	Cooper	... 7
P. F. Blake	b.	Cooper	... 20
C. C. Wilson	b.	Sullivan	... 5
F. R. Parnell	b.	Sullivan	... 0
E. Vincent	b.	Sullivan	... 0
T. Patient	b.	Sullivan	... 5
W. G. Dyson	c.	Koechlin b. Wheeler	... 7
C. H. Brock	Not	Out	... 0
		Extras	... 19
		Total	... 86

BOWLING ANALYSIS.

		O.	M.	R.	W.
Sullivan	...	13	3	26	6
Cooper	...	15	3	32	3
Wheeler	...	2, 1	0	9	1

Tennis.

SINGLES.

Mackay b. Danagher.
Mackay b. Sullivan.
Mackay b. Maule.
Wright b. Sullivan
Wright b. Danagher.
Wright b. Maule.
Loveband b. Maule.
Sullivan b. Loveband.
Loveband b. Danagher.

DOUBLES.

Fraser and Anstead beat Hetherington and Danagher.

Fraser and Anstead beat Sullivan and Maule.

Mackay and Wright beat Hope and Cooper.

Mackay and Wright beat Hetherington and Danagher.

Loveband and Wilson beat Hope and Cooper.

Golf.

C. E. Buckley beat E. G. F. Maule, 5 and 3.
T. I. S. Mackay beat J. H. B. Sullivan, 5 and 3.

RUSSIAN FLEAS.

E. Vincent beat A. V. Danagher.
T. S. Mackay beat E. L. Koechlin.

BRIDGE.

COIMBATORE. BEAT ANAMALAIS.

(Messrs. Buckley, Narasiah, Brock, Loveband, Clare and Anstead).

(Messrs. Davenport, Danagher, Murray, Koechlin, Stuart and Tyringham).

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

WEEKLY REPORT No. 11.

The Deputy Director of Agriculture, Planting Districts, was at headquarters throughout the week, engaged upon routine work.

2. HYBRID COFFEE.—The Hybrid Coffee, which Mr. A. H. Jackson has worked so hard to produce, has now passed its final test, *viz.*, the price obtained for a bulk sample on the London Market.

Hybrid Coffee from Malishwar Estate, this year, fetched the following prices:—

A.	5 bags.	118s.
B.	7 bags.	107s.
C.	1 bag.	72s.
P. B.	3 bags.	126s.
T.	1 bag.	67s.
Average	...	98s.

These prices have only once been equalled for Coorg Coffee this year, and that by the first arrival of the new season's crop.

The sale represents the total crop from the small block so far planted, and the proportions of grade are of interest, *viz.*, A. 29·4%; B. 41·1%; C. 5·9%; P. B. 17·7%; T. 5·9%. A certain amount of A. was no doubt withdrawn for seed, so the proportion of this grade is really higher than shown by these figures.

I understand that Mr. L. P. Kent's excellent Hybrid Coffee continues to give very high yields, so Coffee planters have now got an excellent opportunity of improving their estates, by replacing old degenerated stuff with these hybrids. I have heard it said that the price of the seed is too high, but I do not think this is really the case, as compared with high jat—Tea seed, which, weight for weight, plants a much less acreage; when the results to be obtained are taken into account, it will be found to give a good interest on money invested.

3. THE EXPERIMENT STATIONS.—Heavy rain was again experienced during the week at all the Stations. A break occurred at the end of the week on the Coffee Experiment Station, where a total of 5·27 inches of rain was measured, and advantage was taken of this to begin planting supplies of coffee, and permanent and temporary shade. 193 supplies were put out from the Station nurseries, 71 plants of permanent shade and 120 *Lithosperma* stumps. This work has now been completed in the Hybrid plots. A round of sickle weeding was done over 5 acres. Leaf disease has started all over the Station, and so far the sprayed plots show no advantage over the others, which looks as if the weak solution of Bordeaux Mixture experimented with was not a sufficient protection. It is hoped to arrange to carry out some more experiments later in the year on estates, to test the value of different strengths of spray. The Government Mycologist is prepared to do this work in co-operation with Coffee planters, and the matter will be discussed at the Annual Meeting of the United Planters' Association of Southern India.

At the Tea Experiment Station, 15 68 inches of rain were recorded during the week, but towards its close, a little sunshine was obtained. Advantage was taken of this to put out some supplies. Yield is low owing to the heavy monsoon conditions experienced recently; 254 lbs. of green leaf were plucked from 7·90 acres. The ravine has been cleaned and Dadap cuttings are beginning to grow.

At the Rubber Experiment Station, Mooply, 13·95 inches of rain were recorded, of which 10 20 inches fell in two days, causing heavy floods which interfered with work. Twenty lbs. wet sheet and 5 lbs. wet scrap were obtained from 1,192 trees. Thirty-five pits have been planted with seed selected from five trees, seven pits from each tree.

At the Rubber Experiment Station, Tenmalai, 8·50 inches of rain were recorded, of which 4·20 inches fell on one day. Drains have been repaired, and terracing work was continued. The Secondary Leaf-fall is now general and severe.

(Signed) RUDOLPH. D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

12—viii—21.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

Brown Bast of Rubber.

From the scientific point of view, the display at the fifth International Rubber Exhibition illustrating the Mycological work which is being carried out under the auspices of the Rubber Growers' Association, and the fine exhibit of the Java Rubber Research Station call for special mention, says ***Nature.***

The most important feature of the exhibit of the Rubber Growers' Association was the effectively arranged demonstration of the discovery by the Botany Department of the Imperial College of Science and Technology that, in all probability, Brown Bast is essentially a question of phloem necrosis. Sanderson and Sutcliffe in their investigation of the anatomy of burr-formation, which is the principal external symptom of brown bast, had shown that the burrs result from the inclusion of areas of diseased lactiferous tissue in stone cell pockets formed by the activities of wound cambium. The recent work at the Imperial College, however, focuses attention upon the probability that the disease has its origin in an affection of the sieve-tubes (phloem), the symptoms described by Sanderson and Sutcliffe being a secondary development. The important information now available should be a step forward to the discovery of the causative factors of this baffling disease.

Another series of preparations demonstrated the action of certain fungi—*Diplodia*, *Nectria*, and *Fusarium*—as wound parasites. A further exhibition of the department comprised a series of seed germination experiments, which showed that rubber seed which had failed to germinate was already infected with *Diplodia*, a fungus known to cause a disease of Hevea seedlings.

THE UNITED STATES DEPARTMENT OF AGRICULTURE.

The United States, of all civilised nations, probably realise most the value of agriculture, and the fact that no national undertaking is likely to return a better interest on money invested in it than their Agricultural Department. This Department is, admittedly, one of the best equipped in the world, and the Budgets show how much the State believes in it and supports it. In 1920, a sum of 33,899,761 dollars was spent by the Department; and in 1921, the Budget was 31,713,384 dollars, an economy Budget. The estimates for the year 1921-22 aggregate 41,989,384 dollars. Of the increase, 950,000 dollars is for combating foot and mouth disease, 100,000 dollars for the control of emergency insect infestment, and the same amount for fighting forest fires. These are insurance funds only, to be used in case of necessity.

In addition to the annual appropriations, special appropriations, deficiency appropriations, and an appropriation for printing are annually available. Thus in 1919-20, the total expenditure on the Department was 70,265,464 dollars.

It is not always conceded that money invested in an Agricultural Department can ever return a good interest. It was estimated that, in 1919, plant diseases were responsible for the loss in America of approximately 190 million bushels of Wheat, 78 million bushels of Oats, 200 million bushels of Maize, 86 million bushels of Potatoes, and 18 million bushels of Apples. Now, suppose, the efforts of the Agricultural Department, through the scientific study of these diseases reduced the loss in each case by only one per cent., then taking the values of these crops in America in 1919, it will be found that this would result in a saving of 8 million dollars, or a return of 11 per cent. on the money spent in that year on the whole Department for this section of it alone.

Plant diseases in the same year were estimated to have caused a loss of 1,742,000 bales of Cotton of 500 lbs. each, and a pound of Cotton was valued at 27·6 cents at the beginning of 1919 in America. If the Agricultural Department reduced this loss by one per cent. there would have been a saving of 2·3 million dollars on this crop alone. So, it will be seen that so long as the Department is efficient, there is every probability of money put into it being a good investment from the farmers' point of view.

(Signed) RUDOLPH. D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

2—viii—21.

WYNAAD PLANTERS' ASSOCIATION.

PROCEEDINGS OF AN ORDINARY GENERAL MEETING, HELD AT THE MEPPADI CLUB, ON 10TH AUGUST, 1921, AT 2 P. M.

PRESENT :—Messrs. C. E. Abbott (Chairman), B. L. Behr, H. Cuthell, S. H. Powell, H. C. Davies, H. C. Leslie, P. A. Naylor, B. Malcolm, A. D. MacBain, W. G. Craig, B. D. Darkin, H. R. Bowling, and J. A. Gwynne, Honorary Secretary.

The Chairman in opening the meeting said he thought the discussion at the last meeting on labour rates was rather irregular. He had not interfered because the subject was important, and besides, there was another matter introduced in connection with it which was difficult to decide. He hoped, however, that in future members would abide by the rules for Committee Proceedings at U. P. A. S. I. meetings as far as possible.

The Proceedings of last meeting were taken as read, and were approved,

BANGALORE DELEGATE.—Mr. S. H. Powell was appointed in place of the Honorary Secretary, who is unavoidably detained in the District, to attend the Annual meeting as co-delegate with the Chairman of the Association.

REPORT OF COMMITTEE ON RATES OF PAY, RICE ISSUE AND ENAMS.—The report was read and discussed para by para. The meeting fully agreed with the proposals of the Committee, which consisted of Messrs. Behr, Malcolm and Gwynne. The Chairman expressed the hearty thanks of the Association to the Committee, and this was unanimously endorsed by the members present.

INSTRUCTIONS TO DELEGATES.—Further instructions were given to the delegates on resolutions of other Associations forwarded by the Secretary, U. P. A. S. I.

LOCAL ADMINISTRATION.—Letter from Mr. J. A. Richardson, M. L. C., with copies of further correspondence from Mr. F. J. Richards, I. C. S., were read. Mr. Richards submitted figures showing the impracticability of establishing a separate District Board for the Wynaad.

CORRESPONDENCE.—Read letter from the Superintendent of Post Offices, Malabar Division, on the matter of giving free medical attendance to the staff at Meppadi, Perindotty and Sultan's Battery post offices. The Honorary Secretary was instructed to inform the Superintendent that Audatode Estate would provide free attendance to the staff at Perindotty Post Office, but at Meppadi and Sultan's Battery the same rates as paid by the District Board would be levied.

With a vote of thanks to the Chair, the meeting terminated.

(Signed) C. E. ABBOTT,
Chairman.

(„) J. A. GWYNNE,
Honorary Secretary.

INDIAN TEA ASSOCIATION.

ABSTRACT OF PROCEEDINGS OF A MEETING OF THE GENERAL COMMITTEE, HELD AT CALCUTTA, ON 2ND AUGUST, 1921.

CORRESPONDENCE WITH THE INDIAN TEA ASSOCIATION (LONDON). —Letters, dated 7th and 14th July from the Indian Tea Association (London) were before the Committee. The principal subject dealt with in these letters was:—

> *Indian homeward bills of lading.*—It was mentioned, in the letter of 14th July, that attention had been drawn to the fact that Dutch Lines trading between Calcutta and the Continent had been making changes in their bills of lading, but that shippers generally were in favour of the ordinary Eastern Bill of Lading being used as a foundation for business between Calcutta and continental ports; and enquiry had been made if the London Association wished to make any protest against any alteration in the form. The London Committee had discussed the matter, and were agreed that members of the Association would not be materially affected; for their interests were confined almost entirely to shipments from Calcutta to London, and teas going to continental ports were for the most part, if not wholly, teas bought in the Calcutta auctions.

The Committee noted the position as explained. They decided to forward the information to the Calcutta Tea Traders' Association, as they believed it would interest the members of that Association.

MEASUREMENT OF TEA.—This subject was referred to in the proceedings of last meeting, when it was decided to suggest that the measurement in Calcutta of tea going to the United Kingdom should be stopped, and the prewar system, under which measurement took place only in London, be reverted to; for it seemed to the Committee that double measurement—*i.e.*, measurement both in Calcutta and in London—served no useful purpose while it necessitated the employment, by shippers here, of a special staff to work out freight calculations.

The matter now came up for further discussion, with a view to deciding whether action should be taken by addressing the Calcutta Liners' Conference, or whether, in view of the discussion which took place in London in 1920, on the subject of measurement, it was expedient in the first place to address the Indian Tea Association there regarding it. The Committee were of opinion that the Liners' Conference should be addressed, and they directed accordingly.

THE TEA RATE.—It was recorded in the proceedings of the last Committee meeting that the tea rate for July had been reduced by the Calcutta Conference, London, from £3-2-6 to £2-17-6, less 5/- discount, and that the rate was not to be higher for August. A letter, dated 30th July, had now been received from the Bengal Chamber of Commerce stating that the rate for August would be £2-15 (less 5/- discount). A circular had been issued to members accordingly, and the Indian Tea Association, London, and the Ceylon Chamber of Commerce also informed.

INDIAN TEA CESS.—As noted in last proceedings, the Planters Stores & Agency Co., Ld. had brought up the question of allowing a rebate of cess on shipments of the 1920 crop made subsequent to 1st May, the date as from which the increased cess became payable. The Committee replied, as arranged, that they did not think there was much likelihood that the proposal for a rebate of cess in this case would be supported ; for the case was quite different in principle from the one case in which a rebate of cess had been granted, namely, that of teas sold on the Calcutta market before, but not shipped until after, 1st May.

A further letter, dated 25th July, had been received from the Planters Stores and Agency Co., Ld. The contention of this letter was that, to levy cess at the full new rate on shipments of the 1920 crop made subsequent to 1st May, would operate unfairly on those gardens which had consistently acted in accordance with the Indian Tea Association's restriction of shipment scheme, and which had thereby incurred extra charges such as storage, rent, etc.—charges avoided by firms which had shipped all their 1920 crop prior to 1st May. The Committee remained of the opinion they expressed at last meeting, namely, that there was little likelihood of this suggestion receiving much support. And any advantage, on account of the lower cess, obtained by shipping teas before 1st May was more than discounted by the considerably higher freight rates that had to be paid in the case of teas which were hurried home. The Planters Stores and Agency Co., Ld., were to be informed, accordingly, that the Committee were not prepared to reconsider their view.

INDIAN FACTORIES ACT AMENDMENT BILL.—It was mentioned in the proceedings of the Committee meeting, held on 15th March, 1921, that a copy of the print of the above Bill had been received, and was under the consideration of members of the Committee. Copies of the Bill had since been sent to the Branches and local Associations for an expression of their views, and a Sub-Committee consisting of the Chairman, the Vice-Chairman and Mr. A. D. Gordon was subsequently appointed to deal with the replies, and to draw up a memorandum setting forth the views of the Association generally on the proposals in the Bill.

The Sub-Committee's memorandum had now been received, and was considered. The point of view developed in it was that, although there was no clear reason why the existing exemption of tea gardens from the operation of the Factories Act should not be continued, their inclusion within the scope of the new Bill might be acquiesced in, in view of the wide powers it was proposed to confer on local Governments to exempt particular classes of factories, or classes of work in a factory, from specific clauses of the Bill. Thus, section 21 of the Bill deals with the fixing of rest periods, and section 22 prohibits the employment of any person in a factory on Sundays. Section 32 gives power to exempt tea factories from the operation of these two sections. The memorandum pressed for an extension of this power of exemption to cover certain other sections, the application of which to tea factories would be productive of trouble and difficulty.

The Committee entirely approved of the memorandum and, in accordance with the suggestion made by the Sub-Committee, directed that copies of it should be sent to the Government of India, Department of Industries; the Government of Bengal, Commerce Department; the Government of Assam; the Hon'ble Sir Alexander Murray, C.B.E., Member of the Joint Committee of the Council of State, and the Legislative Assembly appointed to consider the provisions of the Bill; and the Bengal Chamber of Commerce.

REPORT ON THE PRODUCTION OF TEA IN INDIA: METHOD OF COMPILATION OF TEA STATISTICS.—In July 1920 the Committee took up the question of devising a more accurate method than the one then in force of obtaining statistics regarding the production of tea in India, namely, the submission of returns by gardens direct to the various District Officers. The recommendation then made to the Department of Statistics was that agency houses should first be approached for returns, which were to be treated as strictly confidential. The figures thus obtained would then be forwarded to the Deputy Commissioner or other appropriate local official in each district who, it was suggested, might obtain, through the Branches or local Associations, the figures for such gardens as were not represented in Calcutta.

A reply, dated 19th July, to the Association's letter containing these suggestions had now been received from the Director of Statistics. Opinion on the Association's proposals had, it appeared, been asked from the Deputy Commissioners of Darjeeling and Jalpaiguri and from the Government of Assam; and copies of the replies which had been received were attached for information. It was noted that the Deputy Commissioner of Darjeeling favoured the adoption of the proposed procedure, but doubted whether it would attain the desired result; and that the Deputy Commissioner of Jalpaiguri already verified the district figures with a return made by the Dooars Planters' Association. On the other hand the Government of Assam thought that the proposed change would not effect any improvement, and in view of this opinion, and of the large proportion of the cultivated area represented by Assam, the Director of Statistics did not propose, meantime, to go further with the suggestion. The Committee noted the position, and directed that the letter should be recorded.

POTASSIUM AND PLANT GROWTH.

Although many experiments have been made, all showing that potassium salts are essential to the normal growth of plants, there is still ample scope for further investigations, with the object of ascertaining the precise effects which result from the lack of potash salts in the soil. It is, of course, well known that a deficiency of salts of potassium soon makes itself apparent by a withering and dying of the leaf-tips. It is also recognised by growers that the presence of adequate supplies of potassium salts in the soil helps the crop to stand up better in dry weather, and may make the difference between success and failure of a crop grown on light soil in a dry year. This subject, of no less theoretical than practical importance, has been investigated recently by Messrs. T. O. Smith and O. Butler* with very interesting results. They show that the effect of a defective supply of potassium salts make their appearance at a very early stage of the growth of the seedlings; in the case of Wheat (Blue Stem) within 13 days of germination. The symptoms of potassium hunger were a drying of the tips and an irregular crinkling of areas of the older leaves. Another symptom manifest after 19 days from germination was the absence of tillering (stooling) which was taking place in plants supplied with a complete soil solution. The browning effect usually attributed to a lack of potash caused by degeneration of chlorophyll was not, however, observed at this stage. After about three weeks the plants grown in the absence of potash were analysed, and the results compared with those obtained from the analysis of "controls" supplied with potash. It was found that the total dry weight of the potash-starved plants was more than five times less than that of the "control" plants. It was also manifest that the tops had suffered less than the roots—the former weighing only some 4½ times less than the tops of plants grown in a potash-containing medium. Similar experiments with Corn (Zea Mays) gave similar results, except that the check to growth was noticeable rather less precociously in the plant lacking potash than was the case with Wheat. Buckwheat, on the other hand, grown without potash suffered complete arrest of growth on the twelfth day, and whereas at that time the plants possessed only one joint and one small leaf, those supplied with potash had four nodes, well-developed leaves, and were coming into flower. A peculiarity in the distribution of potash was observed in this plant. Whereas in the case of Wheat and Corn the tops and roots have approximately the same amount of potassium per unit of dry weight, in Buckwheat the roots of plants able to absorb potash are much richer in potash than are the stems. It would, therefore, appear that the reason why the growth of Buckwheat deprived of potash is even more puny than that of Wheat and Corn is that it does not distribute evenly the small traces which it is able to get—the roots taking far more than their share. Equally instructive are the results of the experiments carried out by Messrs. Smith and Butler, with a view to ascertaining whether a plant deprived of supplies of potassium in its early stages of growth is able to recover when salts of this element are supplied to it. The expermental answer to this question is an emphatic negative. After three days' abstinence from potassium, a seedling plant, though it may regain health, does not regain its normal vigour even though it be supplied with plenty of potassium salts, and its root system in particular remains poorly developed. If the plant be subjected to six days of potash starvation, subsequent additions of potash to the medium in which it is growing do not "cure" it, and the plant remains stunted. It has usually been held that one of the important uses of potash salts in the plant is that of facilitating the distribution of the sugar formed in the leaf and its accumulation in storage organs. The experiments of Messrs. Smith and Butler do not, however, lend support to this view. A very curious and interesting difference in behaviour of Wheat and Corn seedlings was observed. Whereas lack of potassium during the first six days of its life resulted, in the case of Wheat, in a loss of 62 per cent. of its weight, Corn in this period showed no loss at all, although it failed to develop properly if potash was withheld for a longer period. It looks as though—as the authors point out—one of the roles of potassium is to enable the plant to make some substance necessary for growth, and that this substance exists in greater quantity in the seed of Corn than it does in that of Wheat. The practical value of these observations scarcely needs emphasis. Cultivators must take care, if their soil be one which is poor in potash, to see this lack is made good before the crop is sown, for otherwise their plants may receive a check from which they are not likely wholly to recover.—GARDENERS' CHRONICLE, Vol. LXIX, No. 1794.

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* "Relation of Potassium to Growth in Plants." *Annals of Botany*, Vol. XXXV, No. CXXXVIII, April, 1921.

PHOSPHATIC MANURES: THE PRESENT POSITION.

Since the beginning of the year, the Agricultural Press has been emphasising two aspects of the supply of phosphatic manures. They are (1) that, although official figures show a considerable increase in the production of basic slag, it is likely that there will not be sufficient this season to meet the total demands of the farming community; (2) the fact of the production of superphosphate being in excess of the present demand for it may result in large quantities being exported, on account of the congestion at the works. It is natural for the farmer to enquire how these conditions are likely to affect him, and what he should do to meet them.

Three courses present themselves. The first is to discriminate in the use of basic slag. Requirements per acre are greater now than they have been, because the grades of slag quoted range roughly from 16 to 32 per cent. total phosphates; few range above that figure, and several are below it. When it is remembered that a few years ago high grade slags approximated to 40 per cent. total phosphates, it is obvious that dressings of a 20 per cent. slag must be doubled in quantity to effect the same improvement. Industrial conditions, resulting in short time being worked in the steel works may prove a further factor in limiting output. It would seem important, therefore, to confine the use of slag mainly to grassland, and make up the phosphates required elsewhere by dressings of other manures. There are cases where slag appears to confer no benefit on poor pasture, and it seems questionable whether, where that is so, any other form of phosphatic manure would do better. It is worth mentioning, however, that an absolute lack of potash in some soils may prevent any visible result from dressings of phosphates, while on other soils a rough, matted and fibrous covering greatly handicaps the slag in reaching the soil. A very thorough harrowing is imperative to see this condition right.

The second consideration is the possibility of substituting superphosphates for basic slag. in order to take advantage of the state of supplies. Local experience or experiment may prompt the use of superphosphates on grassland in place of slag. Approximately 5½ cwt. of 35 per cent. superphosphate equals a dressing of 5 cwt. high-grade basic slag. Generally, superphosphate may be substituted where it has been customary to use slag in cropping; the former is more rapid in action, and thus, as a rule, better suited to arable farming. In consequence of this rapidity, its maximum effect is more quickly reached, but where seeds are only down for one year, the influence of this manure applied to the nurse crop will be all that is required. Where there is hesitation to substitute superphosphate for slag altogether, the two may be mixed. Superphosphate will act rapidly on soil with a good lime content.

Thirdly, there is the use of phosphatic manures other than those already discussed. A review of experiments conducted in this country shows that finely ground mineral phosphate is valuable in the North of England, and also in Scotland and in Wales. Good results have also attended its use in Essex, and it has been applied also with benefit in other districts, notably in those with a high rainfall, and on soils rich in organic matter.

The following is a brief resume of some of the more important experiments on which records are available:

Aberdeen 1905-1907, Turnips, Barley, Hay.

In a series of experiments extending over 3 years, the effect of different forms of phosphate, viz, superphosphate, basic slag, bone meal and ground Florida phosphate applied alone and with dung was tested on turnips, followed by barley and hay. In the "no dung" plots, both super and slag gave somewhat better returns than mineral phosphate, but when dung was used the mineral phosphate gave the greatest total value of crops, and considerably the highest profit.

Experiments in *North Wales* also indicate that rock phosphate is distinctly effective. At six centres the yields of swedes were, on the average of three years, 1913-1915, per acre:—

	Tons.	Cwt.
No Phosphate	13	1
*Basic Slag (482 lb.) ...	22	4
*Gafsa Phosphate (333 lb.) ...	21	8
*Superphosphate (539 lb.) ...	22	9

*All contained 220 lb. of phosphate.

These manures are being quoted at a low unit value at present. A mixture of finely-ground soft mineral phosphates and superphosphates may be employed for arable crops. The following quotation from an article by Dr. Russell ‡ summarises the position with regard to mineral phosphates: "*Where basic slag cannot be obtained in sufficient quantity, it is worth while trying mineral phosphates, provided they are sufficiently finely ground.*" Their cheapness suggests use on rough pasture, especially the poorer, high-lying types rented at a figure which makes dressing with slag out of the question. Bone meal, and especially steamed bone flour, have been showing a cheap unit value of late; both contain a little nitrogen, and may with advantage be mixed with superphosphate.—JOURNAL OF THE MINISTRY OF AGRIC., Vol. XXVIII, No. 2.

PRODUCE MARKETS.

TEA.—At auction 23,442 packages of Ceylon were offered and sold fairly well at occasionally easier prices. Common sorts were steady. Common leaf sold from 8d. to 9d. medium to fine from 1s. 3d. to 1s. 6d.

I remarked a week or two back that Mincing lane is very keen on any news of tea for Russia, and I may record that the tea market derived considerable encouragement last week from the reported shipment of some 100,000 lbs. to Petrograd, and this after the market had been closed for several years during the Bolshevik regime. If last week's consignment may be regarded as the beginning of a return to the normal in the Russian trade, the existence of very heavy stocks in this country loses much in its potency. It is probable that for some years Russia has confined itself to China teas. The feature of the London tea market last week was a revival of interest in good common tea. It is common tea that constitutes the bulk of the surplus stock here, and therefore its absorption is a matter of first-class importance to the producing industry. Tea shares have been in better demand and quotations have developed an improving tendency. Forced liquidation may possibly carry shares down still lower yet. But it is just as inadvisable to wait to get in at the very bottom of a slump as it is to delay realising until the very top of a boom, and there seems little doubt that taking a broad view, conditions in the tea market are on the turn, and that an unusual opportunity is presented to in vestors who are prepared to lock up their money for a time.

Thus there are some cheery signs that the fortunes of this industry are at their lowest ebb, and that the tide is beginning to turn with a welcome improvement in the Continental trade. If only trade with Russia could be revived—and it may be presumed that the present chaotic conditions there cannot continue indefinitely—it is probably that the demand would quickly overtake supply. It must not be forgotten that the heaviest losses in connection with the huge stocks of tea in this country will mainly fall, not on the plantation companies but on the dealers and distributing houses, while the saving in costs this year through the lower exchange and the reduction in other expenses, such as freight, packing, etc , will make a big differrence when next year's balance-sheets have to be made up. Allowing for the small crops, the best managed companies are expected to show a reduction of from 3d. to 4d. per pound, and with the better prices obtainable for the new season's teas a respectable profit can fairly be reckoned upon.

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‡ Journal of the Ministry of Agriculture, Jan. 1921, p. 963.

RUBBER. —The price has dropped back from 10d. to 9¾d., but there is a fair enquiry, and a good business has been transacted on c. i. f. terms for American account, cables from the East reporting better buying enquiries. In such weather as we are experiencing no one who can possibly escape from business remains, and thus manufacturers are slacking off. This by no means applies to the heads of firms ; the "horny handed " now-a-days are just as keen to enjoy the sea-breezes and " all the fun of the fair."

The stock is slightly up again, being once more in the " seventies " with 70,472 tons. But this increase is small, and the general trend is towards improvement. For instance, in the first half of 1921 the Malayan exports how a reduction of 40,000 tons, coupled with this is the fact that Singapore and Colombo are holding less stocks than for a long time past. The superior financing facilities of London have been the magnet. The United States stocks are probably near the working minimum and, considering how, from lack of coal, many manufactures here have had to close down, it cannot be said that the outlook is anything but hopeful. It is a good sign, meanwhile, that speculators who sold " forward " are not quite happy over the many signs that the rubber position has seen the worst and is likely to mend. And consumers also are beginning to consider rather gravely the proceedings of the R. G. A.

Planters and others in wet districts would doubtless like to take advantage of an offer being made this week by John Barker & Co., of Kensington, of Government rubber knee boots. They state they have purchased 2,000 pairs (from the Canadian Admiralty) of highest quality made by famous Toronto makers. The price is 11s. 6d , and they are stated to be worth 35s.—("Times of Ceylon.")

REDUCED FREIGHTS TO INDIA.

GERMAN UNDERCUTTING BRINGS ABOUT RATE FIGHT.

AID TO EXPORTS.

25 per cent lower after this month.

As a result of shipping competition on the Continent, a reduction of 25 per cent. is being made on freight rates from the United Kingdom to India by the dozen British companies known as the "Conference" lines.

. "The new rates," said an official of one of the companies concerned to an "Evening Standard" representative to-day, "have practically been brought about by the freight-cutting policy of the German lines, which have been making a bold bid for European shipping to the East. This has been found practicable by the low scale of working costs on German as compared with British vessels, which have been handicapped both as regards wages and coal supplies."

MANUFACTURERS' COMPLAINT.

"During the long drawn-out coal dispute our export trade practically came to a standstill, and the British shippers, finding that they were being undercut by the German lines, had to make a corresponding reduction about six weeks ago in freight rates to get a share of the Continental trade to the East.

"This, in turn, led to the contention by British manufacturers that we were favouring Continental trade to the Orient at the cost of our own export trade—a situation which was really brought about by the force of circumstances, as the European traders, in any case, have the advantage already of the low Continental freight charges."

STIMULATING EXPORT TRADE.

"The British shippers recognise, of course, that their interests lie largely, if not mainly, in the British export trade; and, while during the coal crisis the home output of goods fell off enormously, a brisk export trade to the East is now possible: though it will be some time yet before the factories here are in full swing.

"Meanwhile we are prepared to do what we can to stimulate British export trade to the East. The 25 per cent. reduction on freights to India begins from August 1st, and will, for the present, apply to Bombay, but Calcutta, Madras, and other ports will doubtless be included in due course."—"Evening Standard," July 27th.

RUBBER STOCKS.

NEED FOR FURTHER RESTRICTION.

Apropos the necessary policy of increasing the restriction of rubber output, the "Financial Times" points out that until quite recently stocks had been increasing at the rate of about 1,000 tons per week, and it is only within the last two weeks that any appreciable excess of deliveries over landings has been shown. It is estimated that the world's stocks of rubber, including those in the hands of manufacturers, amounted to 290,000 tons at the end of last year. At the close of June this total has risen to 305,000 tons. Stocks in London and Liverpool, which were 56,000 tons in December last, had risen to 79,000 tons at the end of May. Stocks in London, as the principal holding centre and the dumping ground for rubber not required elsewhere, naturally show the greatest increase. On the other hand, some decline has taken place in the amounts held in the United States and afloat. Reshipments to London from New York have no doubt accounted for part of the decline there and the increase in London. But in any case the reduction in American stocks probably does not exceed 10,000 tons. At the present rate of production the new supply of rubber for this year would be in the neighbourhood of 280,000 tons, as against a potential normal output of 390,000 tons. The world's consumption for this year will not exceed 250,000 tons. Thus unless the restriction is applied on an extensive scale the close of the present year would see an increase of 30,000 tons on top of the heavy stocks already in existence. For 1922 the output on a normal basis would be as much as 410,000 tons, but even the partial restriction now in vogue would reduce this to 285,000 tons.

LETTERS TO THE EDITOR.

(*The Planters' Chronicle is not responsible for the opinion of its Correspondents.*)

The U. P. A. S. I. Labour Department.

Dear Mr. Editor,—As "Interested," who writes in the *Planters' Chronicle*, dated 23rd July, appears to know so much about the manner in which the U. P. A. S. I. and the Labour Department should be run, would it not be a brain wave for the Powers that be to offer him a billet on the staff of the U. P. A. S. I.? Think of the statistics which would roll in so regularly at the beginning of each year, and of the hordes of coolies with whom "Interested" would put us in touch.

It is easy enough for "Interested" to sling ink and mud around from the depths of a long chair. He is probably one of those who expect the Labour Department to run his tote for him.

As one who has derived considerable benefit from the Labour Department, and who takes an interest in the working of that division of the Labour Department with which I have dealings, I would ask "Interested" to compare the work of the Labour Department with that of the Ceylon Labour Commission. Does the C. L. C. recruit labour for Ceylon estates directly or indirectly? No. If Ceylon planters do not expect their Labour Department to recruit labour for them, why should we in India expect our Department to do so? Personally I consider that it is the primary duty of every planter to recruit his own labour, and not expect others to do it for him.

The Department will always assist those who ask for help, and very valuable assistance they can give, too.

I obtain my labour from a District that is admittedly over recruited, and I do not think it is fair to expect the Labour Department to obtain new connections, in that area, although it has been done. It should be remembered that the Labour Department is composed of seven or eight divisions, and it is unfair to damn it collectively.

There is doubtless plenty of scope for increasing the efficiency of the Department, but before we can expect that we must be prepared to put up more money for the work than we are doing at present.

"INTELLIGENTLY INTERESTED."

Soondhully Estate,
Belegodu P. O., Hassan Dt.,
10th August, 1921.

The U. P. A. S. I. Labour Department.

Dear Sir,—One reads so many letters these days in the Chronicle from those dissatisfied with the LABOUR DEPARTMENT, that I think the time has come when those who have received benefits from it should say so, if only in fairness to the Department.

During the last four months I have received immense help from the Mangalore Branch, not only have they recovered money for me which exceeds my subscription, but they have also recovered money for my Suppliers, and been of great assistance to them in tracing their absconding coolies, and either induced them to return to the estate or else persuaded them to pay up the amount they owed. I have also found the Department of great help in hurrying up my suppliers to send up their labour to the Estates.

I have also found that whenever I have referred to the Department for advice as to advancing new maistries they have been of immense help, letting me know the status of the man in question with great promptitude.

I write this with no idea of wanting to see myself in print, but do so in fairness to the Department, and I hope others who are satisfied with it will follow suit, and say so. I have found that I have got far more benefit from the Labour Department for my Subscription to the U.P.A.S.I. than from proposing at Association Meetings that such and such a road on such and such a Ghaut is in a disgraceful condition and needs attention, or that such and such a village needs a Dispensary, or by proposing that the Postmaster-General be written to *re.* the late delivery of the Mails, etc., etc.

Yours faithfully,
E. H. YOUNG.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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THE ANNUAL MEETING OF THE U. P. A. S. I.

We have to apologise this week for the rather sketchy nature of our contents bill, which is due to the difficulty of working in more or less uncomfortable surroundings, and under stress of a certain amount of extra work involved by attendance at the Annual Meeting.

Well, it is over, and, since Meetings of this nature almost invariably put on some definite characteristic, we may as well say at once that this one will always remain uppermost in our minds as being typical of the excellent relations existing between planters, but which are not always so apparent as they have been this past week. To this fact is due, we think, the smooth working of the meeting, helped along tremendously by Mr. Congreve's very apparent determination to "get on with it," a faculty he possesses in a high degree and which is a most desirable trait in the U. P. A. S. I. Chairman, whatever else his qualities may be. From the opening address down to the final votes of thanks, themselves models of concise oratory and judicious praise, the frills were forgotten, delegates seemed to keep more to the point than has always been the case, and the meeting thus passed with a certain amount of *elan*; an entire absence of unpleasant friction which was most pleasing. This new brevity may well be remembered in contrast with the sometimes unduly prolonged verbosity of previous years' gatherings.

As the Chairman very rightly and with justifiable pride pointed out, two resolutions were passed which will go a long way towards solving the problem of the future of the Labour Department. One was that arising out of Mr. J. R. Vincent's very able speech on the system of raising funds for the department by means of separate fees charged for work taken up, and the other the decision to appoint a Commission of enquiry into the working of the Department, the scope of the Commission to include the question of Income and Expenditure of the Association generally. In the former case the report of a Sub-Committee, modifying in some degree Mr. Vincent's proposals, will be referred back to District Associations for discussion, with a request to report before 30th November. We trust that in the meanwhile planters will take advantage of the opportunity they have through these columns of airing their views on this very important matter. The latter resolution will no doubt please Mr. Waddington, when he reads this issue and sees the decision to appoint a Commission of enquiry. It is one of the things we know he has had very much at heart, and if, by the time it is appointed, the question of charging individual estates for services rendered is either settled or in so advanced a position for the Commission to know the feelings of the District Associations, we can unhesitatingly agree with Mr. Congreve that the Commission will have in its hands the salvation of the U. P. A. S. I.

Once word more, we congratulate our unfortunate brothers—the rubber planters,—on the sympathy expressed by the more fortunate Tea and Coffee men in the plight of the Rubber Industry. If, indeed, the Association is to be a United Association, then it is by such action as that suggested all through the debate on the cess question that such unity will be cemented. The next Chairman—Mr. Pinches—may be relied upon to carry on that great tradition, and incidentally, we would like here to congratulate Mr. Pinches on his election to the Chair. Our best felicitations are however reserved for the planting community in general, and the U. P. A. S. I. in particular, on that gentleman having been persuaded at last to take office.

THE EXECUTIVE COMMITTEE.

The following is the result of the election of the Executive Committee for the ensuing year :—

Tea ...	Active ...	J. Hatton Robinson.
	In Waiting ...	A. S. Dandison.
Coffee ...	Active ...	Col. W. L. Crawford, D. S. O.
	In Waiting ...	C. Lake.
Rubber ...	Active ...	J. R. Vincent.
	In Waiting ...	A. C. Morrell.

THE U.P.A.S.I. ANNUAL GENERAL MEETING,

AUGUST, 1921.

The following is the list of resolutions passed at the Annual Meeting of the U. P. A. S. I. this week at Bangalore. Numbers 1, 9, 20 and 25 were withdrawn :—

Articles of Association.

Resolution No. 2.

"With reference to Article 7 in the Articles of Association, that instead of the dates, 30th day of June, 30th day of September, 31st day of December, and 31st day of March the following be substituted 1st April, 1st July, 1st October, and 1st January."

Proposed by ... MR. J. A. RICHARDSON ... Central Travancore.
Seconded by ... MR. H. L. PINCHES ... Kanan Devans.

Incorporation of District Associations.

Resolution No. 3.

"That the Secretary is hereby instructed to communicate with the Solicitors of the Association requesting them to expedite the registration of District Associations."

Proposed by ... MR. J. R. VINCENT ... Mundakayam.
Seconded by ... MR. A. S. DANDISON ... Nilgiris.

South Indian Planters' Benevolent Fund.

Resolution No. 4.

"That Rule XI shall read,—'All subscriptions shall be due on the 1st April each year, and the Secretary or Honorary Secretaries of local Associations shall collect same.'"

Proposed by ... MR. W. L. CRAWFORD ... South Mysore.
Seconded by ... MR. N. G. B. KIRWAN ... Coorg.

U. P. A. S. I. Rules.

Resolution No. 5.

PROPOSED FROM THE CHAIR :—

(a) "That in Rule I of the U. P. A. S. I., for the words "15th March" read "first day of January."

(b) "That in Rule IX of the U. P. A. S. I., for the words "first of March" read "first day of February."

Labour Department.

Resolution No. 6.

"That a Committee consisting of the Chairman, Sir Fairless Barber, Mr. Mackie and Mr. Lake be formed to consider Mr. Vincent's proposals regarding the future running of the Labour Department, and report to this Meeting."

Proposed by ... MR. H. L. PINCHES ... Kanan Devan P, A.
Seconded by ... MR. J. A. RICHARDSON ... Central Travancore.

The Publicity Board.

Resolution No. 7.

"That the Publicity Board be requested to issue a pamphlet in the vernacular pointing out the hardships and distress caused to labour by the work of agitators."

Proposed by ... MR. H. C. WESTAWAY ... Central Travancore.
Seconded by ... MR. H. L. PINCHES ... Kanan Devans.

The Reformed Councils and Politics.

Resolution No. 8.

"That this Association communic with other purely mofussil bodies representing the Anglo-Saxon Community witha view to obtaining direct represention in the Imperial Legislative Assembly or Council of State."

Proposed by ... MR. C. H. GODFREY ... North Mysore.
Seconded by ... MR. A. S. DANDISON ... Nilgiris.

Labour Laws.

Resolution No. 10.

"That this Association is strongly in favour of amending the Workman's Breach of Contract Act on the lines indicated by the Committee, omitting the provision for the raising of the amount of advances."

Proposed by ... MR. A. K, WELD-DOWNING ... Nilgiris.
Seconded by ... MR. R. FOWKE ... Nilgiri-Wynaad.

Malabar Tenants' Improvement Act

Resolution No. 11.

"That the Government be again approached requesting the early introduction into the Nilgiri-Wynaad of the Malabar Tenants' Improvement Act."

Proposed by ... Mr. J. AIRD ... Nilgiri-Wynaad.

Seconded by ... Mr. A. S. DANDISON ... Nilgiris.

Harbours.

Resolution No. 12.

"That this Meeting should cable to the Secretary of State urging the immediate allotment of a special and available Dredger which the Government of Madras have asked him for."

Proposed by ... Mr. J. A. RICHARDSON ... Central Travancore.

Seconded by ... Mr. H. L. PINCHES ... Kanan Devans.

Export Duty on Tea.

Resolution No. 13.

"That this Association expresses its regret that the Government of India has refused to remove this tax on our industry, and hopes that they will reconsider their decision."

Proposed by ... Mr. C. E ABBOTT ... Wynaad.

Seconded by ... Mr. A. K. WELD-DOWNING... Nilgiris.

Roads.

Resolution No. 14.

"That Government be once more asked to approach the Madura District Board with regard to the very bad state of the Periakulam—Uttamapalayam—Cumbum—Kuruvanuth Road."

Proposed by ... Mr. A. R. St. GEORGE ... Central Travancore.

Seconded by ... Mr. H. L. PINCHES ... Kanan Devans.

Roads.

Resolution No. 15.

" That, as nothing appears to have been done to give effect to our previous resolutions, this Association again impress on Government the urgent necessity that exists for the improvement of communications into Planting Districts (including the strengthening of viaducts) to enable them to carry motor lorry traffic."

Proposed by ... Mr. A. K. WELD-DOWNING., Nilgiris.

Seconded by ... Mr. HATTON ROBINSON ... Anamallais.

Labour Rates of Pay.

Resolution No. 16.

" That the suggestion laid down by the South Indian Association be carried out, and that rates of pay and conditions of service in the various districts be standardised as far as possible, and returns of same be sent in to the U. P. A. S. I. and forwarded to the South Indian Association in London."

Proposed by ... Mr. J. A. RICHARDSON ... Central Travancore.

Seconded by ... Sir FAIRLESS BARBER ... ...

Statistics.

Resolution No. 17.

" That in the interests of the Planting Industry of S. India this Association asks for legislation to make the rendering Statistics compulsory."

Proposed by ... Mr. A. K. WELD-DOWNING., Nilgiris.

Seconded by ... Mr. HATTON ROBINSON ... Anamallais.

Statistics.

Resolution No. *18.*

"That the Executive Committee be asked to see that the Associations' Officials in future keep up-to-date Statistics regarding the production and distribution of Tea, Coffee and Rubber in South India."

Proposed by ... Mr. J. MACKIE ... South Travancore.

Seconded by ... Mr. A. C. MORRELL ... West Coast.

Manures.

Resolution No. *19.*

" That this Association having since 1893 persistently urged upon Government the necessity for conserving Indigenous Manures in the country, and having again and again asked for the imposition of an export tax on

Bones, whole-heartedly endorses the Resolutions No. 7 and 8 passed at the Eleventh Meeting of the Board of Agriculture in 1920, viz:

No. 7. "That the Committee's proposal regarding the imposition of an export tax on Oil Seed and Cakes be accepted."

No. 8. "That, as far as Bone and Fish Manure are concerned, total prohibition of export is necessary."

"The Association recognises that the above proposals are made with a view of conserving India's Fertilisers for India's good, with which policy the Association is, as ever, unreservedly in accord, and, with the view of strengthening the case for immediate action to carry out the same, a matter of paramount importance, the Association hereby instructs its Secretary to communicate this Resolution to the Government of India."

Proposed by ... MR. C. H, GODFREY ... North Mysore.

Seconded by ... MR. R. D. ANSTEAD, M. A. ... Deputy Director of Agriculture, Planting Districts.

Shipping.

Resolution No 21.

"That the Secretary of the U. P. A. S. I. be asked to write the Liners' Conference complaining about the inadequacy of freight on the West Coast during recent months"

Proposed by ... MR. JOHN B. COOK. ... South Travancore.

Seconded by ... MR. A. C. MORRELL. ... West Coast.

The Labour Department.

Resolution No, 22.

"That the Executive Committee be empowered to appoint a Commission to enquire into the working of the Labour Department generally, including the Income and Expenditure of the Association."

Proposed by ... MR. H. L. PINCHES ... Kanan Devans.

Seconded by ... MR. J. R. VINCENT ... Mundakayam.

The Labour Department.

Resolution No. 23.

"That the suggestions put forward by Mr. Vincent and the modifications thereof recommended by the Committee be referred to District Associations for discussion, and with a request to report before 30th November."

Proposed by ... SIR FAIRLESS BARBER ... ...

Seconded by ... MR. C. LAKE ... South Mysore.

Labour Rules, Amendment of.

Resolution NO. 24.

"That in view of the persistent recruiting by a neighbouring Planting District, of labour from the Shevaroys, a bye-law be embodied in the existing Inter-District Labour Rules, preventing such recruiting by Districts affiliated to the U. P. A. S. I., or any member, or his appointed agent, in this or other Planting Districts.

"That the framing of this bye-law be entrusted to the Executive Committee, and referred back to District Associations."

Proposed by ... MR. V. L. TRAVERS DRAPES... Shevaroys.

Seconded by ... MR. E. L. POYSER ... North Mysore.

Labour Rules, Amendment of.

Resolution No. 26.

That no Association or Member of an Association should raise the pay of coolies without giving six months notice of their intentions to the Labour Department, for circulation to other Associations."

Proposed by ... MR. R. FOWKE ... Nilgiri-Wynaad.

Seconded by ... MR. A. K. WELD-DOWNING ... Nilgiris.

Labour Rules, Amendment of.

Resolution No. 27.

That the Executive Committee be requested to frame a Rule that will cover cases of absconding Maistries working on other Estates as coolies."

Proposed by ... MR. E. W. SIMCOCK ... Anamallais.

Seconded by ... MR. A. K. WELD-DOWNING... Nilgiris.

Rubber—Restriction of Output.

Resolution No. 28.

"That the U. P. A. S. I. bring to the notice of the R. G. A., London the fact that, at a Meeting of the Local Branch of the R. G. A. in 1920, preferential treatment was requested for South India; that since that date South India has loyally carried out restriction; but that, owing to the extremely adverse conditions obtaining in South India, South Indian Rubber Growers feel they cannot continue to restrict, or that if they do, that the restriction of output be confined to stopping tapping for a limited period per annum—each District Association to decide in which period tapping should cease. Further, that the U. P. A. S. I. request the R. G. Association to put the above proposals before Ceylon, and the F. M. S. for acceptance."

Proposed by ... MR. J. R. VINCENT ... Mundakayam.

Seconded by ... MR. A. C. MORRELL ... West Coast.

Budget & Finance.

Resolution No. 29.

"That the Secretary is hereby instructed to communicate with the Secretaries of District Associations, informing them that it is imperative that all overdue subscriptions should be paid at once, and that the U. P. A. S. I. will take steps to help the District Associations in the recovery of these sums. The U. P. A. S. I. in General Meeting also wishes to record the fact, and impress it on all District Associations that as all subscribing Estates have guaranteed their subscriptions for five years, no resignations can or will be allowed until at the end of the guaranteed period."

Proposed by ... MR. J. R. VINCENT ... Mundakayam.
Seconded by ... MR. J. A. RICHARDSON ... Central Travancore.

Mr. ANSTEAD'S REPORT.

At the meeting in Bangalore this week, the Deputy Director of Agriculture, Planting Districts, supplemented his published report with a few remarks written subsequently to the 31st March, which we think deserve publication. In the course of these, Mr. Anstead said:—

Since the Report was written, immediately upon my return from leave, I have paid a visit of inspection to all the Experiment Stations and substations. Owing to the general slump, work of all kinds, more especially connected with Tea and Rubber, has had to be much curtailed. For instance, the Manurial Experiments at Kerala Estate have had to be stopped for the present, though the different plots will be tapped separately and the results recorded. The spacing experiment on this Estate has been started, and in a year or two should begin to furnish some interesting results.

The Coffee Experiment Station is getting into its stride, and a number of interesting experiments are being carried out. The plots are somewhat uneven at present, so that it will be some time, I fear, before any reliable numerical results can be got from the manurial experiments, but experiments with green dressings, composts, secondary shade, and so on, are already beginning to give valuable results. One of the most interesting things at this Station is the two areas of old Coffee which have been replanted with Kent's and Jackson's Hybrids, respectively. The plants in both areas are growing well, and will give a valuable trial to these hybrids in old land. Jackson's Hybrid has, this year, justified itself in the London Market, a consignment from Malishwar Estate fetching top prices for Coorg Coffee, A. 118s. and an average price throughout of 98/. This hybrid has thus shown that it not only yields heavily, but produces a bean of a high quality, which can compete in the market with standard grades of South Indian Coffee. It is now up to planters to try it for themselves on a big scale and under varying conditions.

Spraying experiments are being undertaken at the Experiment Station as a preventative against leaf disease and black rot. There is no doubt that, if the Coffee can be sprayed at the right time before leaf disease appears the bushes are, to a large extent, protected from the pest, with a resulting increase in health and crop. Past experiments have shown, however, that the cost is high. More recently it has been found that spray mixtures of less strength appear to be equally effective, and this reduces the cost very considerably. Another big series of spraying experiments should now be undertaken, to test the efficiency of these weaker sprays, and the Acting Government Mycologist is anxious to conduct such a series. He is present at this Meeting, and I hope that Coffee Planters interested in this subject will take the opportunity of discussing the matter with him and with me, with the object of arranging for some more spraying trials.

At the Tea Experiment Station, work is also in train. Here, we aim chiefly at demonstrating the value of green manures, both to prevent wash and to add nitrogen and organic matter to the soil, and thus reduce the manuring bill, a matter of the greatest importance, at the proper time.

Mosquito Blight continues to be a pest of primary importance in many Tea districts, and I hope to take up the question with the help of the Government Entomologist, and see if the work done in Assam along the lines of the Potash Phosphoric Acid ratio in the soil is applicable to South

Indian conditions. The Government Entomologist is present at this Meeting, and I hope the opportunity will be taken to discuss the matter with him.

The Rubber Experiment Station at Mooply has begun work, and that at Tenmalai will begin in September. We have started some seed selection work this year. It has been noticed that a few trees appear to be resistant to *Phytophthora Meadii*, the fungus which causes the abnormal leaf-fall. Seed has been taken from these trees, and is being planted out in a special plot with the idea of raising trees from seed at stake and finding out whether this apparent immunity is carried over. It is also hoped, later, to do some grafting.

The most important advance during the year in Rubber has been the completion of the Mycological Station at Mundakayam, and the arrival of the Rubber Mycologist. Mr. Ashplant arrived in July, and is now situated at the Station and has begun work. I will leave it to him to tell you what he proposes to do. An experimental area of rubber has been attached to the Mycological Station by the kindness of Mr. Harley, to whom so much of the success of the whole scheme is due, and there is some more spare land, which we hope to acquire for future work.

A great advance has been made recently in the general use of green dressings on Rubber Estates, and large areas are now under *Tephrosia candida*, a plant which has the virtue of being able to grow under the shade of old rubber. This practice prevents soil erosion, though in many cases, I fear, it is locking the stable door after the horse has been stolen, reduces the weeding bill, and adds nitrogen to the soil.

Now that prices are so low that the utmost economy must be maintained on the Estates, the rational control of weeds and the use of green dressings, which I have had the pleasure of preaching at these meetings for so many years, are coming into their own, and demonstrating their value, and I hope that many of the clean weeding schools who still exist will become converts owing to the difficulties of the times. If that is the case, it will be one advantage gained at least from the present evil times through which our planting industries are passing.

Another matter which has engaged my attention for a long time has, I venture to think, been advanced a step. That is the question of mouldy rubber. There are two main factors which bear upon this. First, the drying of rubber and second, the package. Unless rubber sheet is packed perfectly dry, it will develop mould by the time it reaches England. Too often, the sheets are dried thoroughly in the smoke houses and then brought into a damp factory to be packed. Under these circumstances, the sheets absorb moisture, and the result is mould. The dry sheets must be packed in a dry room and into dry chests. During the monsoon, it may be necessary to have the packing room heated with hot air.

The second cause of mould is that the cases get wet during transport to the coast, and while being put into the steamers. This happens again and again, and is almost sure to do so, when the nature of our transport in many cases is taken into consideration.

I have had some experiments carried out with packing the dry sheet in a dry, warm room in lead-lined cases, and these have proved a great success. Of 20 cases lead lined, 18 arrived in perfectly good condition free from mould, and the sheet fetched 2s. 2½d. per lb., while sheet despatched at the same time in ordinary chests was all mouldy and fetched only 2s. per lb. Four ounce lead costs about Rs. 70 per case of 2 cwts.ex-store Calicut. This supplies lead for 50 cases, 24 x 19 x 19, each case holding 160 lbs. of rubber sheet. Suppose, we take the cost at Rs. 75 to include transport, then the cost of lead-lining comes to Rs. 1-8-0 per case. Add eight annas for making soldering, etc., and call it Rs. 2 per case. This adds 0·2 anna per lb. to the cost of rubber, or 1¼ cents. The loss of price due to mould averages about 2 annas per lb., or 12½ cents. So we are spending 1¼ cents to gain 10 or more cents. which is a business proposition. Also, I may add, that there is a sale for the lead at home after the cases have been unpacked, which still further reduces the cost.

This appears to me to be the best way yet found of getting over the trouble of mouldy rubber, but it must be remembered that damp rubber packed in lead-lined chests will still develop mould.

One last point before I close. I have, in the past, had much to thank my brother officers of the Agricultural Department for in the way of help and co-operation when planting interests are concerned. You all know how much we owe to Mr. MacRae. I am happy to say that this spirit of co-operation continues to exist, and I hope, during the coming year, to get the Government Entomologist to make an extended tour of the planting districts with me, to advise us about our insect pests generally, and our Mosquito Blight in particular. I also hope to persuade the Government Agricultural Bacteriologist to take up the study of the fermentation of tea and coffee, both problems which have been badly neglected in the past. Both these officers are present at this Meeting, as well as the Acting Government Mycologist, I trust that these matters will be discussed.

THE SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT No. 12.

The Deputy Director of Agriculture left for Bangalore on Friday afternoon to attend the Annual Meeting of the United Planters' Association of Southern India. Mr. Anstead will pay a visit of inspection to one estate in the Nilgiris on his way back from the Meeting, and inspect a site for the headquarters of the Planting Mycologist. He will be back at headquarters on the evening of 3rd September.

2. THE EXPERIMENT STATIONS.—At the Coffee Experiment Station lighter rain, amounting to 5 inches, has been experienced during the week, and planting out of supplies was continued, 750 plants being put out over 7½ acres. 1,094 *Erythrina lithosperma* stumps were also put out for Secondary shade. Sickle weeding was done over 2½ acres. Leaf disease continues to be severe.

At the Tea Experiment Station, the rain during the week has been lighter, and there has been a little sun. A total of 7·89 inches was recorded, the heaviest day giving 2·78 inches. The yield continues to be low, and the quality of leaf poor owing to the recent heavy monsoon conditions; 182 lbs. of leaf were plucked from 2·54 acres. The main drain in Plot No. 24 is being deepened. Mosquito Blight attack is slackening.

At the Rubber Experiment Station, Mooply, 7·78 inches of rain were recorded. At the beginning of the week the rain was heavy, but towards the end fine weather was experienced. Drains damaged by last week's floods have been repaired, and dead wood carried into the Station removed. Daily tapping has been done, but a low yield was obtained, 49½ lbs. of wet sheet and 12 lbs. of wet scrap, from 1,192 trees. Seed selection work was continued, and 63 pits have been filled to date. Most of the trees are affected by abnormal leaf-fall and black line canker, due to the same fungus. *Phytophthora Meadii*, is prevalent. Izal is being used as a preventative, a 2% solution. Eleven cases of Patch Canker were treated.

Seed selection is also being done at the Rubber Experiment Station, Tenmalai, the selected seed being sent to Mooply to be planted. At this Station, the rainfall was light during the week, only 2·07 inches being recorded. Abnormal leaf-fall is very apparent, some 80% of the leaves being down. A large scale map of the Station has been made, and the plots marked out and a programme of work drawn up. Tapping will begin on 1st September.

(Signed) RUDOLPH. D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.
19—viii—21.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

Potato Cultivation.

A number of planters are more or less interested, I believe, in the growing of Potatoes, and indeed it is a crop which is worth more attention than it gets at present. Writing some time ago in the *Planters' Chronicle, Volume XIII, page 60*, I said that some experiments had been laid down to throw light upon the question whether it is better to plant big or small seed tubers. This experiment was carried out, but the results were not considered conclusive, as they were interfered with by disease. A repetition of the experiment was arranged for, but was never carried out.

In the *Journal of the Ministry of Agriculture, (England), Volume XXVIII, No. 1*, there is a very interesting account of some experiments carried out on this very point.

Selection of the seed tubers was made according to various grades, and the number of tubers in every pound weight of seed was carefully checked. The tubers were selected both for size and weight, so that each class was as uniform as possible. The classes selected were: —

Weight of Tuber Sets.

1	0·4 oz.	*i.e.* 36 tubers to 1 lb.
2	1·2 oz.	12 " "
3	2·0 oz.	8 " "
4	2·6 oz.	6 " "
5	4 oz.	4 " "
6	5·3 oz.	3 " "
7	5·6 oz.	12 tubers to 4¼ lbs.

The tubers were planted in rows, in the midst of a farm crop of potatoes of the same variety. The part of the field selected, the soil of which was a medium clayey loam, was as nearly uniform in quality as it was possible to find. Manuring was the same for the entire crop, *viz.*, 15 tons per acre laid in the furrows on which the potatoes were planted. The distance between the sets was 15 inches, and between the rows 30 inches. The tubers were not cut.

The results are set out in the following table:—

	Class of seed tuber.	Weight of set.	Weight of seed used.	Number of sets.	Weight of yield.	Ratio seed to yield.	Yield per set.	Yield per acre.	Weight of seed per acre.	Ware per acre 4 oz. & over.	Yield per acre less seed.
	lb.	oz.	lb.		lbs.		lbs.	Tons.	Tons.	Tons.	Tons.
1.	36:1	0·44	8·5	304	280	1 : 33	0·92	5·7	0·17	2·15	5·53
2.	12:1	1·33	29	348	504	1:17·4	1·45	9·0	0·51	2·45	8·49
3.	12:1½	2	31	248	553	1 : 18	2 23	13·8	0·77	4·36	13·0
4.	12:2	2·66	73	438	756	1:10·3	1·73	10·7	1·0	3·67	9·7
5.	12:3	4	16·5	66	128	1 : 7·8	1·95	12·0	1·5	2·64	10·5
6.	12:4	5·33	47·5	142	256	1 : 5·4	1·8	11·2	2·1	3·55	9·1
7.	12:4¼	5·66	50	141	264	1 : 5·3	1·9	11·8	2·2	2·82	9·6

From these results it is evident that it is tubers of 2 oz. weight which gave the best return of crop, especially when the weight of seed is taken into consideration with the yield.

A further analysis of crop, to determine the proportion of large potatoes, showed that the crop from small seed produced a greater percentage of large ware than those from large seed. As the value of a potato crop is concentrated in the main on the quantity of the large size tubers formed, it is of interest to note that the highest value, 73 per cent. of the total crop, is given by seed tubers of less than 1 oz. in weight, so it would appear that the larger the set the smaller the quantity of large potatoes obtained in the crop. When the fact is taken into account of the bigger crop thrown by the 2 oz. sets, the total yield per acre of large ware, 63 per cent. is considerably greater in this than in any other class.

This is contrary to the ordinary belief and practice, and it is of interest to note that our experiment, as far as it went, showed the same thing. We found that small seed gave just as good a result as large seed, and a better yield than cut tubers. Our results were as follows:—

	Yield per root in ounces.	
Class of Set.	Whole tubers.	Cut tubers.
4 oz.	... 2·18	... 1·42
2 oz.	... 2·02	... 1·75
1 oz.	... 1·82	... 1·24

As stated above, the experiment was disturbed by drought and disease, and was never repeated. The figures are only given to show that, in spite of this, they point the same way as the authoritative experiment herein quoted.

(Signed) RUDOLPH. D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

19—vii—21.

SOUTH TRAVANCORE PLANTERS' ASSOCIATION.

PROCEEDINGS OF AN EXTRAORDINARY MEETING, HELD AT THE CLUB, QUILON, ON SATURDAY, 13TH AUGUST, 1921, AT 10 o'clock A. M.

PRESENT.—Messrs. J. B. Cook (Chairman), A. H. L. White, E. C. Sherman, G. McPherson, R. N. W. Jodrell, J. L. Hall, T. L. Jackson, J. Mackie, R. Ross, R. Branson, L. G. Knight, and J. R. N. Pryde, (Honorary Secretary).

VISITORS.—Messrs. A. G. A. Dunning and C. Hall.

Notice calling the meeting having been taken as read, Minutes of the Annual Meeting, held on 7th May, were confirmed.

CORRESPONDENCE.—Read letter from the U. B. A. asking for more support from members of this Association, and it was ascertained that, since the letter was received, more members had joined.

Read letter from the Travancore Sambavar Sangham regarding colonization of the Sambavar community in or near Planting Districts, and the Honorary Secretary was instructed to reply that such a scheme would meet with the approval of members.

S. INDIAN NURSING ASSOCIATION.—Pamphlets regarding the amalgamation with the Lady Ampthill Nurses Institute, and revised fees, were circulated, and the Honorary Secretary gave some further information which had been obtained from the L. A. N. I., and it was decided that subscription be continued. The Secretary also reported that the name of the only member eligible for nomination had been forwarded to the U. P. A. S. I.

LABOUR.—The standardization of rates was discussed at some length, and the Honorary Secretary was instructed to obtain details of rates and concessions given by each estate, with a view to some solution being reached; but it was recognised that there was a difficulty owing to South Travancore being a scattered district and different conditions obtaining in the different parts; also that non-members may not fall into line with subscribing estates.

It was suggested that the Maniyachi neighbourhood could be more easily worked from the Palamcottah division of the Labour Department than from Madura, and after consultation with Mr. Dunning, the Palamcottah Superintendent, the delegates to Bangalore were instructed to suggest that the Koilpatti taluk be transferred to Palamcottah division.

U. P. A. S. I. ANNUAL MEETING.—The Honorary Secretary reported that he had received a letter from Mr. R. Ross stating he would be unable to attend as one of the delegates, and it was proposed by Mr. Pryde and seconded by Mr. Jackson that Mr. Mackie be elected in his place.

The various matters to come up at Bangalore were then gone into. The Association had no objection to the Planting Member's proposal to make subscriptions payable in advance, but delegates were instructed strongly to oppose any increase in subscription.

The meeting then closed with a vote of thanks to the Chair.

(Signed) J. R. N. PRYDE,
Honorary Secretary.

18—8—21.

THE MARKETS.

While the Annual Meeting of the U. P. A. S. I. was in progress at Bangalore, we received the following interesting report from Messrs. T. H. Allan & Co.

Coffee—Offerings in auction have been:—

	July 20th to 26th. Offered.	Sold.	Offered since 1st Jan.
East India ...	...	...	49,169
Nairobi ...	2,703	1,321	46,942
Uganda ...	356	48	23,974
Toro ...	10	...	...
Costa Rica ...	801	696	82,345
Other Milds ...	1,865	1,112	56,198
Brazil ...	1,288	...	32,983
Robusta ...	...	...	1,618
Tanganyika ...	336	...	6,229

The offerings have consisted largely of medium and common coffees which, with the exception of some common Costa Ricas, were almost neglected. Anything with quality meets with good demand at very full prices. East Indias are almost at an end, and the supply of Nairobis is not quite so heavy as it was, but unfortunately very little of it is really attractive. There has been more demand for "C" size, and for unsized parcels suitable for the same purposes.

Auctions are now suspended until the 9th August.

Tea.—The feeling all round has been fairly cheerful, and prices, although a little irregular, have been firm, where not quotably higher.

Cocoa.—A small business at unchanged prices.

Rubber.—Has been quieter again after the recent spurt, with very little business doing—last night the Market closed steadier at 9d. and 8½d. buyers.

Pepper.—Quiet but steady. Trifling sales of "Fair Tellicherry" at 5d.

Cardamoms.—There seems to be a little more enquiry for low grades for grinding purposes.

It will be seen from the above that no East India Coffees were offered, and the season must now be practically at an end.

By the same mail we received the following from Messrs. Leslie and Anderson:—

Coffee.—The quantities offered at auctions show a falling off, and are composed mostly of East African and Central American Coffees. Fine qualities continue to command high prices, but medium and poor descriptions continue slow of sale.

Pepper.—The market for pepper here continues good, but slow. In view of the advices from the Far East, reporting firmness in the Singapore market, we are in hopes that prices generally will advance in the autumn.

Tea.—The smaller supplies of Indian Teas catalogued for auctions this week met with a fair demand, and full to dearer prices were realised. Figures have been published this week indicating that the crops of Northern India Teas shew a falling off of 30,000,000 lbs. Whilst stocks of Common Teas here are still large, we are glad to think the position seems to be righting itself.

Rubber.—The market during the past week continued steady at the advance, but quiet, until yesterday, when prices for all grades declined.

Both the Eastern and New York markets being easier; we quote Crepe and Sheets at 9½d. and 8¾d., respectively.

Imports during the week have exceeded deliveries by about 600 tons. Stocks to-day stand at 70,442 tons.

LETTERS TO THE EDITOR.

(The Planters' Chronicle is not responsible for the opinion of its Correspondents.)

Office of the Deputy Director of Agriculture,
Planting Districts,
Agricultural College,
Lawley Road, 18th August, 1921.

From
Rudolph D. Anstead, Esq.; M.A.,
Deputy Director of Agriculture,
Planting Districts.

To
The Editor,
The " Planters' Chronicle."

SUBJECT.—**Picking of Coffee for Quality.**

SIR,—The letter from "Part Owner" in your last week's issue fully justifies my contention that coffee, to give quality, should be picked ripe, and that the coffee from bad and diseased patches should be picked separately and not mixed with the bulk.

2. Some years ago, in 1910 to be exact, a series of very valuable articles appeared in your pages on the subject of coffee curing, over the familiar initials *E. W. R.*, and anything this correspondent has to say on the subject should be listened to with the greatest respect.

3. *E. W. R.* quite rightly interprets me as meaning that unremunerative areas of old worn out coffee should be replaced by hybrids in the first place, and when this is done the next less remunerative areas, and so on. It is true that these hybrids have yet to prove that they will grow and yield heavily in poor lands on a large scale, but I have seen them doing so on a small area. *E. W. R.*, who has no doubt seen the original seed bearers of Mr. Jackson's, must admit that they are on the poorest of poor land.

4. Nor do I think we need fear the admixture of the hybrid bean lowering the quality or price of the estate sample. Judging from the prices obtained this year for hybrid coffee, (see my report No. 11), rather the reverse may be expected to happen.

5. I am not prepared to prophesy of course, but the only way to answer *E. W. R*'s gloomy question with which he ends his letter is to try. At least we are no worse off than at present, and these hybrids are more promising than even Maragogipe, Robusta, and Co. were at their best.

Yours faithfully,

RUDOLPH. D. ANSTEAD,

Deputy Director of Agriculture, Planting Districts.

19—viii—21.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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THE IMPROVEMENT OF PADDY CULTIVATION.

BY "PLANTER."

There is hardly any necessity for emphasizing the great importance that exists for the efficient cultivation of paddy, and the devising of means ready at hand for increasing the yield, as it forms the staple food of millions of people throughout the country. The importance of the subject was clearly exemplified during 1918-19 when, owing to a deficiency of reasonable rainfall, there was a partial failure of the paddy crop throughout the greater part of India and the neighbouring Crown Colony of Ceylon, and thousands of tons of rice had to be imported from Burmah to save the people practically from starvation. It did little more; for even with the augmented supply, rice was only obtainable at almost famine rates. But this failure was due to deficient rainfall, over which no one can have any control: and it is well known that when seasons are unpropitious the effects of fertilisers are partly nullified.

Before enquiring into the available means for improving the yield of paddy fields, it would be well to notice the practices that obtain with cultivators generally. This article refers more particularly to the practices prevalent in Coorg and the neighbouring uplands of Mysore, where paddy is cultivated side by side with coffee; but they may be taken as typical of other districts; a large part of South Canara for instance, except that tw crops are raised in the latter to only one in the former.

The application of manure precedes the ploughing, except leaf manure, which is trampled into the ground after the ploughing has proceeded for some time. Women are employed putting out the manure, which consists of refuse matter, paddy chaff, ashes, cattle droppings, etc., and is deposited at intervals over the fields, and sometimes lies exposed for months, but the ryots do not appear concerned about the loss manure exposed to the weather undergoes. Ploughing begins with the early rains in April and May, and is a very slow process, having to be done many times with the primitive plough most generally in use. This implement, which is shaped like a badly constructed "T" with one arm bent and shod with an iron nail for scratching the ground, costs about one rupee to make, the iron nail costing a few annas, and the balance going to pay the hire of the cooly who cuts the necessary wood in the jungle, and shapes it.

Early in May and June (May in the Mysore uplands) the nursery beds are shown with seed. This seed is not selected, but is a portion of the previous crop of paddy reserved for seed. The paddy fields in Coorg are divided into so many batties each. A batty equals 80 seers or measures, so that a batty of paddy land did at one time, in the remote past, yield a batty of paddy grain. Now-a-days it yields from one-third to three-fourths of a batty. One hundred batties of land is equivalent to 33⅓ acres. The quantity of seed sown in a nursery to plant up that area ranges between 2 and 3 batties, a prodigal waste which is due to the practice of planting out bunches of from 5 to 15 seedlings in each spot.

When the ploughing is completed, the fields are levelled by means of a board drawn by bullocks, the fields being completely flooded. The transplanting of the paddy seedlings is commenced about July and continued into August. All work connected with the fields is finished before September in the localities here dealt with. In South Canara the planting out of the seedlings of the first crop is completed earlier, and the labourers are then at liberty to come up and work in the coffee estates. Some of them return about September to harvest the first crop, and after helping to sow the second crop, they return to the estates about November.

The most obvious means of improving the yield, even with the ordinary manuring, is, as the Agricultural Department has advised the cultivators to adopt, what is known as the single planting of paddy; that is, instead of putting down bunches of plants in each spot 9 inches apart to put down single plants at those intervals. Though some of the more enlightened cultivators have demonstrated to their own satisfaction on small areas that under this system the seedlings tiller freely, produce ears of even size which mature uniformly—in short that it is unquestionably the best method of cultivating paddy, yet they are so wedded to old customs that they will continue immemorial practices. The objection raised is that single planting requires more labour, as the coolies experience difficulty in picking out plants singly. This comes of sowing the nurseries too thickly with seed, when the seedlings grow up so thin and crowded that it is difficult to separate them. If in place of sowing a nursery with from 5 to 7 measures of seed, which is at present the practice, only 2 measures were sown over the same extent of nursery, the plants would grow up with very much thicker stems, there would be less difficulty in picking them out singly, especially if they were carried to the fields in baskets instead of being tied up in bundles. As a matter of fact, it was found by Mr. Kolandevalu Udayar, of Kalli Kurichi Taluq, South Arcot, that single planting was more economical, for whereas in the old method it usually required 16 coolies to transplant one cawnie, under the new system it required only 10 coolies, and they did it easily; for it is gratifying to note that the new method of planting paddy has commended itself to land owners in parts of the Madras Presidency, notably in Arcot.

The above mentioned landowner found that with single planting and with unselected seed the yield was nearly doubled. Under the old system it was never more than 27 kalamas per acre; under the new it amounted to 45 kalamas. This Indian farmer tried the new system under the advice of the Agricultural Department, but it is to the Credit of Abaranam Pillai of Chidambaram in the South of the Madras Presidency that he arrived at it by the exertion of his own intelligence. This is how it happened. A few seedlings were left over after transplanting a field. These he planted one by one along a channel. When the crop grew and came to maturity, it was observed that there were only 10 or 12 stems in each tuft where 6 or 7 seedlings had been planted together, while the single seedlings produced as many as 20 shoots a piece; and while the ears of the first mentioned plants were of irregular lengths, and irregular maturity, the ears produced by the shoots of the single plants were mostly of the same length, well filled appearance and even maturity. This induced this intelligent man to try single planting the next year on one cent of land, and this produced 60 lbs. of paddy, equal to 6,000 lbs. per acre. Naturally he extended the system to include his whole farm.

The next obvious means for improving the yield of paddy, as of any other cultivated plant, is seed selection. The ryot has been reprehensibly neglectful in this respect. Even if he has been aware of the difference in the grains, he seems to have been obsessed by the idea that every grain would make an equally good plant. It has been demonstrated that unselected seed taken from single planted paddy tends to increase the crop ; how much more would this be the case if the seed were carefully selected ? There is a praiseworthy practice in Coorg of procuring seed from ouside the District once in 10 or 12 years ; but in this case also the seed is unselected.

Efficient ploughs have been adopted by intelligent cultivators. Let us hope that the day is not far distant when they will come into more general use. Their cost deters the poorer ryots from adopting them.

The great importance of the utilization of the right fertilisers for paddy is obvious. When efficient manures have been used even with the non-selection of seed and the old method of planting out seedlings, the results have been very good. How much more so would they if used in combination with careful seed selection and the approved modern method of planting the fields ! Where the fields are deficient in nitrogen the most obvious means of restoring their fertility is to grow leguminous crops, and plough them in before putting down the staple crop. This is done to a large extent in the plains or maidan part of Mysore and parts of the Madras Presidency, but is sadly neglected in Coorg and the uplands of Mysore, the reason apparently being that the ryots in these parts consider the application of green jungle leaves an efficient substitute. The manures most generally used are practically purely nitrogenous, with the exception of the small quantity of potash contained in the ashes applied. It is usual to speak of cattle manure as being a complete general fertiliser, but as the products of its decay are chiefly ammonia and carbonic acid gas, and it liberates its mineral constituents very slowly, it may practically be classed as a purely nitrogenous manure. There are fields on which the paddy runs entirely to straw when cattle manure is applied. In these cases the application of phosphates and potash in a free state is called for. In one case in Arcot a landowner applied 312 lbs. of bone meal per acre, and the resulting crop turned out 6000 lbs. of paddy per acre, while the straw was 5 feet high. Caste prejudice operates in most Districts against the use of bone meal. In all such cases mineral phosphates might be used. As in the case of fields in Coorg and the uplands of Mysore jungle land is attached to them for purposes of supplying timber for buildings, wood for fuel and leaves and leaf-mould for fertilising the fields. Nitre beds might be made by making composts of jungle top soil, ashes and such cattle and pig manure as is available. These would make a more efficacious fertilizer than those generally utilized.—" Indian Scientific Agriculturist."

THE RUBBER GROWERS' ASSOCIATION.

The Secretary, R. G. A. issues the following Circular, dated 15th July, 1921.

Publicity Department.

Dear Sirs,—With reference to the Circular, dated 15th June, appealing for subscriptions towards the expenses of the new Publicity Department, I have to advise you that, up to the present donations have been voted by 85 Company Members, and 36 Individual Members, amounting in the aggregate to £558-8-0. Some of these donations are subject to the total amount of £1,500 being raised apart from the Association's allocation, or to 75% of the Association's members contributing.

The Press & Propaganda Committee have selected a suitable candidate for the position, and a recommendation will be submitted to the Council at their meeting to be held on 25th instant, and the Committee are anxious to report that the total sum required has been raised.

In these circumstances, I am directed to urge that Members who are willing to support the proposals and have not returned the reply form will do so without delay. The Committee recognise that the matter will have to come formally before Boards of Directors, but if such Board Meetings are not likely to be held before the 25th July the Committee will much appreciate a provisional notification of the support likely to be forthcoming from your Company.

Yours faithfully,

FRANK G. SMITH,

Secretary.

THE SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT No. 13.

1. The Deputy Director of Agriculture, Planting Districts, attended the Annual Meeting of the U. P. A. S. I. at Bangalore, where he presented his Annual Report and brought it up to date and took part in the discussion on agricultural matters which was held on Tuesday. He seconded the resolution brought forward by Mr. Godfrey about the conservation of indigenous manures, a subject with which he has been associated for some years.

2. On Friday morning an informal meeting of Coffee planters was held, at which the subject of spraying forleaf disease was discussed with Mr. Anstead and the Acting Government Mycologist. It is proposed to carry out a new series of experiments to test the efficacy of weaker concentrations of Bordeaux mixture, and different adhesives. Should a weaker solution prove as effective as the ordinary standard mixture, the cost per acre will be considerably reduced.

3. The subject of Coffee Hybrids was also discussed at this meeting, "Kent's Arabia" suits some districts, while in others "Jackson's Hybrid" proves the better. It is quite impossible for us to say which will prove the better in any locality, as conditions of soil and climate are so variable, and the only thing planters can do is to try both varieties side by side, and find out for themselves which is the better under their particular conditions and then stick to that.

4. Mr. Angelos Boucos, the Manager of the Bombay Branch of MM. Maurice Ries & Fils, a firm anxious to develop the Coffee industry in Marseilles and France, was present at the meeting, and discussed with the planters present the possibilities of doing business.

5. THE EXPERIMENT STATIONS.—At the Coffee Experiment Station 2·72 inches of rain were recorded, every day being showery. The first round of supplying has been completed, and 1,367 plants put out. Sickle weeding has been done on 3 acres, and the secondary shade planting is stil in progress.

At the Tea Experiment Station a little better weather has been experienced, 5·42 inches of rain being recorded during the week. 296 lbs. of green leaf were plucked from 8 acres. Supplying is being done, and a new nursery has been started opposite Plot 13. The roof of the cooly lines has been repaired, and the smoke exits lowered.

At the Rubber Experiment Station, Mooply, rain fell each day during the week, and 6·46 inches were recorded. Tapping was a good deal interfered with, 50½ lbs. of wet sheet and 11½ lbs. of wet scrap being obtained from 1,192 trees. Patch canker is prevalent under the wet conditions, and 18 cases have been treated. In the seed selection plot the young plants are coming up well, and the pits are being caged for protection.

At the Rubber Experiment Station, Tenmalai, monsoon conditions have been light, and 1·80 inches of rain were gauged.

(Signed) RUDOLPH. D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.
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SCIENTIFIC DEPARTMENT, U. P. A. S. I.

Artificial Weather.

It is usually said that whatever else Scientists may be able to do they cannot alter the weather, and apart from a few more or less unsuccessful attempts to make rain fall by firing at clouds, I think the Scientists have until recently accepted this limitation to their powers.

Recently, however, the problem has been attacked from a different angle, and the results obtained point to the hope that even the control of rain may give way to man's knowledge, for ever reaching out to grasp the stars.

Our readers may have seen some account in the newspapers of the rain making work being done in Alberta. I have been unable to obtain any scientific report on this work, but in the "*United Empire*," the Journal of the Royal Colonial Institute, for July, there is an authoritative statement by Sir James D. Connolly, the Agent General for Western Australia, dealing with the subject. He states that the most notable experiments were carried out in Australia by Mr. J. C. Balsillie, the former Government Wireless Expert, under contract with the Commonwealth Government. Mr. Balsillie explains the scientific basis of his experiments as follows:—"The device, as improved and worked to-day is very simple, and comparatively inexpensive. It is based on the discovery that atmospheric electricity resists rainfall, and that the diminution or cancellation by artificial means of the potential gradient, that is to say the atmospheric charge, existing in fair or clear weather between elevated zones of cloud as high as 7 miles above the earth's surface and the ground, results in the disturbance of the stability of previously existing conditions, so that clouds are formed in the affected zone, and rainfall is produced. It the potential gradient between clouds or parts of them and the ground be diminished or cancelled by artificial means, rain is procured or stimulated according to the prevailing conditions. For the purpose of the experiment, two or three box kites attached to a thousand feet of galvanised flexible wire were sent up to an altitude of some 4,000 to 6,000 feet. On each kite was mounted a special type of terminal which ensured close contact with the atmosphere. This terminal was connected electrically to the kite wire, the lower end of which was associated with a special type of winch which was grounded. Mr. Balsillie says that on every occasion, when the kites have reached the requisite altitude, and when the wind has maintained the kite aloft for more than six hours, either cloud formation has been effected or rainfall has actually been procured. This has occurred on a number of occasions when the kites have been up in a clear sky, with an entire absence of any sign of approaching rain. Sir J. Connolly wonders if many realise the effect which the success, or even partial success of an experiment of this kind will have on the future of the Empire. It disposes at once of the desert interior of Australia. Almost every acre of Western Australia is capable of producing any food stuff if it had a sufficient or regular rainfall which would enable the State to take for the next fifty years all the excess population of Great Britain. The same remark applies to vast dry tracts in South Africa and India, and other parts of the British Empire.

(Signed) RUDOLPH D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

16—viii—21

RUBBER TRADE ASSOCIATION OF LONDON.

Monthly Statistics.

JULY, 1921.

Movements of all kinds of Rubber to and from the United Kingdom as per BOARD OF TRADE RETURNS.

IMPORTS.

From	June.			Six Months ended June.		
	1921.	1920.	1913.	1921.	1920.	1913
Straits Settlements and F. M. S. ...	2,712	5,292	1,718	29,841	26,650	11,759
Ceylon and British India ...	902	1,921	393	10,873	12,711	3,153
Dutch East Indies, &c. ...	2,160	1,737	105	9,359	5,616	621
Brazil and Peru ...	104	976	943	1,108	4,921	11,229
Other Countries ...	11	277	1,607	485	1,706	9,725
Total Tons ...	5,889	10,203	4,766	51,666	51,604	36,487

EXPORTS.

To	June.			Six months ended June.		
	1921.	1920.	1913.	1921.	1920.	1913.
United States of America ...	484	2,243	1,354	4,222	22,281	7,904
Canada ...	17	658	71	35	2,410	259
France ...	187	1,269	420	1,674	7,992	2,409
Belgium ...	182	231	158	481	1,586	991
Italy ...	49	164	15	436	1,923	119
Spain ...	5	20	8	61	101	36
Germany, Austria, Hungary ...	579	487	948	3,644	2,288	5,686
Russia ...	1	4	518	1	26	3,539
Sweden, Norway and Denmark ...	51	185	85	514	644	386
Other Countries in Europe ...	264	272	89	803	457	673
Other Extra European Countries ...	6	128	64	40	546	390
Total Tons ...	1,825	5,661	3,730	11,911	40,254	22,392

LANDINGS, DELIVERIES and STOCKS in London and Liverpool as returned by the Warehouses and Wharves during the month of June.

		Landed for June.	Delivered for June.	Stocks 30th June.		
				1921.	1920.	1919.
LONDON ...	Plantation ...	5,549	6,544	69,011	21,949	24,806
	Other Grades...	...	...	397	568	588
LIVERPOOL...	Plantation ...	1,196†	614†	7,547†	976†	3,500†
	Para & Peruvian	230	185	1,050	1,130	1,644
	Other Grades.,	...	...	460	447	428
Totals London & Liverpool...		6,975	7,343	78,465	25,070	30,966

† Official Returns from the six recognised Public Warehouses.

Movements of all kinds of Rubber, excluding Gutta, Balata and Guayule, to and from the U. S. A., AS PER RETURNS OF THE UNITED STATES DEPARTMENT OF COMMERCE.

	April.			Four Months ended April.		
	1921.	1920.	1919.	1921.	1920.	1919.
IMPORTS ...	11,646	28,406	27,574	46,181	126,736	81,675
EXPORTS ...	759	377	193	1,879	942	594

RECEIPTS AT PARA.

	May.			Jan./May (5 months).		
	1921.	1920.	1919.	1921.	1920.	1919
Rubber ...	1,005	1,780	1,450	7,077	11,900	12,515
Caucho ...	595	730	990	2,080	3,580	3,780
Total...	1,600	2,510	2,440	9,157	15,480	16,295

TEA CULTIVATION.

Should manure be more extensively used on Ceylon tea estates at the present time and, if so, to what extent?

This is the question which is agitating the minds of Colombo Agents, V. A.'s and Estate Superintendents alike at the present moment, and, so far as a *Times of Ceylon* representative was able to gather as a result of inquiries made yesterday, the general opinion appears to be that it is highly desirable that a moderate programme of manuring should be adopted. In tact the use of basic slag and of fertilisers is being once again slowly resorted fo by Ceylon tea estates.

The position is this. Mr. T. Petch, the Government Botanist and Mycologist, most emphatically declares that the present serious outbreak of Red Rust in Ceylon is very largely due to the reduction of manuring which occurred during the war. Speaking at a meeting of the Sabaragamuwa P. A. a few weeks ago, Mr. Petch said that, as a result of extensive investigations, it has been decided that Red Rust is a disease which is only serious on weak bushes.

Continuing, Mr. Petch said:—"Some of the factors which favour an attack of Red Rust may be looked upon as local factors, *i.e.*, factors which can only influence a comparatively small area—for example, lack of drainage. In the present occurrence the disease is widely spread, and, if the controlling factor is the same throughout, we must look for a more general one. That, I think, is to be found in the reduction of manuring which occurred during the war. In the report for 1919 I intimated that the shortage of manures was beginning to show its effect by the prevalence of Red Rust, and that, I believe, is now the case. Whether the bushes have been further weakened by overplucking during the same period I leave to you. The general treatment of fields attacked by Red Rust must be increased manuring, I would add increased cultivation, if necessary, but I am given to understand that cultivation has been carried on rather with an idea that it would compensate for manuring.

" In India, it is recommended that fields affected with Red Rust should be manured immediately after pruning with a mixture of 1 cwt. ammonium sulphate, 1 cwt. superphosphate, and ½ cwt. of potassium nitrate for light soils, or with 1 cwt. basic slag and 1 cwt. potassium nitrate for heavy soils."

Mr. Petch called attention to the recommendation of potash in either case, and declared that mycologists are agreed that manuring with potash diminishes susceptibility to disease. In the case of tea there was no doubt that it favoured the development of wood and, although the crop is a leaf crop, one cannot have leaf without a frame work to produce it.

But there are, in Colombo, not a few buyers who look very serious when there is talk of a resumption of manuring. They argue—and there appears to be some jutification for their statement—that increased manuring means a coarser leaf. If manuring is again extensively resorted to, they declare, quality is bound to suffer and prices will fall.

In this connection the views of a prominent Up-Country tea planter are of particular interest. " I quite agree" he informed a *Times of Ceylon* representative yesterday, " that heavy manuring is bound to result in heavy growth and consequent coarseness of leaf. However, we have learned a lesson as a result of past experience, and I do not imagine that any Company will be sufficiently foolish to revert to the heavy manuring methods which were once so popular. No one, I should imagine, is likely to put in 750 lbs. of manure at a time. What I am doing is to put in basic slag immediately after pruning. Eight or nine months later I put in, say, 250 lbs. of some suitable manure, and, eight or nine months afterwards, another 250 lbs. of manure. In this way the growth of the plant is constantly stimulated, yet not unduly forced."

He added that quite a lot of fertilisers appear to be going up-country at present, and that tea planters generally seem to be resuming manuring. Most of them are putting in basic slag at present.

A leading Colombo estate agent, interviewed on the subject, expressed the opinion that a careful policy of manuring rather improved the quality of the tea. He pointed out that fertilisers are a little cheaper to-day than they were a few months ago, and that it is imperative that the bushes should be sufficiently strengthened to enable them to resist the attacks of Red Rust and other diseases.—("Times of Ceylon.")

DAILY v ALTERNATE DAY TAPPING.

By J. S. Ferguson.

(The Indian Rubber Journal)

The respective merits of daily and alternate daily tapping have long been discussed, and to many the absence of concrete facts and figures makes the ultimate issue still obscure.

Daily tapping, only a few years ago, was practically universally employed, the exceptions to this being only a few of the estates situated in the coastal districts of Selangor.

Of late, however, much larger proportion of estates in the F. M. S. have veered round to alternate day tapping, and to-day this system of excision is undoubtedly fast coming into vogue.

Matters have, of course, been accentuated in this respect by abnormal circumstances arising out of the present world-wide financial depression, and the change has in part been forced upon us by the necessity which thus arose for evolving a more economical method of collection, at a lower production cost; the change has also been brought about in part by the necessity for curtailment of rubber production.

In this latter respect the modification has been very largely effected by adoption of alternate in place of daily tapping, without extending the length of the tapping cut, and to-day the single quarter cut, alternate day tapping (S.Q.A. D.) system is very much to the fore.

Whether this system will find favour as a permanency when we again arrive at normal times, I cannot say; it has undoubtedly its advanta ge and is conservative, allowing as it does 10-12 years for renewal of bark without going higher up the tree than 24 in. from the ground.

What we have to aim at, apart from the question of supply and demand of the product, is a system of excision which will give the greatest return of rubber from the tree without impairing its vitality.

In this respect one must first of all assess the commercial "life" of the rubber tree; it is folly, in my opinion, to imagine a rubber tree is going to live for ever; the construction and formation of the tree is not such as will allow of a long life. It is built up of soft wood which will not withstand tropical conditions for an indefinite period, as is evidenced by the oldest trees in the country. I cite those until recently growing in the townships of Batu Gajah and Kuala Kangsar, Perak, as also the trees originally planted on Kamuning Estate, Sungei Siput.

These old trees attained the age of something like 35 years, but to-day very few of these trees are alive, dry rot and root diseases having claimed the majority; the remaining few have long ceased to produce.

For commercial purposes one must, therefore, decide upon the period of "life" or usefulness of the tree for the purposes of rubber production, and in the light of present-day knowledge I do not consider that this can with safety be put at more than 35 years.

If the foregoing statement of "life" is even approximately correct, our business as rubber producers (apart from supply and demand) is to evolve a system of excision which will produce the maximum amount of rubber from the tree during its 30 years of productivity; that also at the lowest possible cost compatible with efficiency. Maximum crops will not be forthcoming unless the system of tapping in vogue allows for a full period for bark renewal, thus maintaining the vitality of the tree, enabling some to withstand attack by pests and diseases and premature deterioration through debility caused from over-tapping.

Having observed carefully the relative results and effect upon the tree of both daily and alternate day tapping, I personally have no doubt at all as to which of the two systems of tapping is most exacting upon the general health and vitality of the tree.

The frequency of excision has a very much more injurious effect upon the tree than has the actual extent of removal of bark, and to maintain the tree at its maximum vitality we must aim at the minimum amount of excision or wounding of the tissue; for, after all, tapping, no matter how perfect, is wounding, and the frequency of same is the determining factor of the severity of the relative systems, so far as the actual welfare of the tree is concerned.

As proof of this statement, one has but to "rest" an area of rubber; the result of this, when the trees are again opened for tapping, is an immediate abnormal wound response. Yields remain high for a time, but gradually come down as the tapping is continued and the effect of the "rest" wears off. The same applies to daily versus alternate day tapping; the wound response is very much less from the former than from the latter, given equal length of cuts; *i.e.*, the collection per tapper is very much greater from alternate than rom daily tapping; this again is due to the less injurious effect of the modified extent of excision. Further proof of this is also evidenced from a comparison of areas of rubber growing under approximately similar conditions of cultivation and soil; it is my experience that areas tapped daily are in a much less healthy state generally; there is a larger proportion of trees affected by Brown Bast, and corrugation of the renewing surface is very much more frequent and pronounced than upon similar areas tapped only alternate daily.

Actual renewal of bark I put in the ratio of 6 to 8; *i.e*, six years' renewal with alternate day tapping is equal, usually much better, than is eight years' renewal with daily tapping.

Consumption of bark is slightly heavier with alternate day tapping upon a half circumference cut than is daily tapping upon only a quarter section; moreover, it is more difficult to confine the tappers to ¾ in per month with alternate than it is to get them to work to 1½ in. per month with daily tapping ; the ratio here might be put at one-third as to a quarter; *i.e.*, as regards actual consumption one-quarter cut daily is equal to one-third cut tapped alternate daily.

So far as the effects of the relative systems upon the tree are concerned, I have no doubt at all that alternate day excision is very much less injurious than is daily tapping, and if one is to regard the rubber tree as a permanent investment for the period of its commercial "life," I consider it essential to practise alternate day tapping from the inception of operations; the more rubber one sees, the more convincing, to my mind, is the above statement.

During the past few years I have had an opportunity of inspecting estates in every part of the Malay Peninsula, and while I claim no monopoly in my views, I consider that it is the person who has an opportunity of seeing large areas of rubber, tapped under varying systems, who is best fitted to judge as to the relative merits of same.

I have seen and examined very carefully the extent of spread of Brown Bast upon estates very approximately similar growing conditions with trees of equal age ; on the one the extent of affection is as high as 25 per cent. to 50 per cent. ; while upon others, for no apparent reason other than alternate in place of daily tapping, the extent of spread is not more than 5 per cent., and that in rubber of over 10 years of age.

YIELDS.—The crux of the whole question is, of course, the relative yields from the respective systems; past experiments over a period of three years go to show that the maximum return of rubber from a single quarter cut, tapped alternate in place of daily excision, is only 75 per cent. of that of the latter system. I have other records, taken over a period of three years, which only show 63 per cent. of the crop obtained from similar areas tapped daily.

Again, from similar areas tapped alternate daily upon a half section of the tree, results were 100 as compared with only 66 per cent. obtained from the single quarter cut, tapped daily.

From the foregoing I consider we can safely assume that alternate day tapping upon a quarter section will not compare, as regards yields, with daily tapping upon the same length of cut; we can also assume that a quarter section is not the most economical for alternate day tapping, and that a higher yield will be forthcoming from an extended cut, as is also proved by the above experiments.

The question is whether the tree will endure continuous tapping upon a longer section. I have not the least doubt about this, and, in fact, I consider that alternate day tapping upon a half section is very much less exacting than is daily tapping on a quarter section.

I base this opinion upon what I have seen as to the relative effects upon the trees from the two systems. I am further of opinion that alternate day tapping upon a half section of the tree will produce a greater amount of rubber per tree and per acre during the period of its commercial "life" of 35 years than will daily tapping upon a quarter section, and that incidentally at a much lower cost.

Labour.—The saving in labour alone is, of course, a very big item, and this is particularly so upon hilly or even undulating estates where tapping tasks have to be rated lower; with the one system the estate obtains a maximum return of rubber from the hands employed, whereas from the other you do not.

The collection of rubber is very much greater from alternate than daily tapping (anything up to 50 per cent. more), and with Chinese contract labour employed at high rates, this is a very great saving and cannot be overlooked, especially at the moment, when the margin of profit has practically disappeared.

Tapping Systems.—The single cut on a quarter section of the tree was looked upon as the recognised system of excision for daily tapping; as a means of restriction, however, a number of estates of late have further modified this system to a single quarter alternate daily (S. Q. A. D) system. The opinion in many quarters is that the majority of such estates will come to regard the present system of restricted tapping as their permanent system, and will not again revert to daily tapping.

The question of labour will come into play here, and may prove the governing factor. Should, however, a large number of estates again attempt to rush into daily tapping, when conditions and prices for the commodity again improve, the immediate effect will be another great competitive scramble for labour, attended by an increase in rates of pay, which would be deplorable.

As I have, however, before stated, the single quarter, tapped only alternate daily, will not give the maximum output per acre, and if full crops are again required, the alternative to reversion to daily tapping will be extending the length of the cut, and this is the course which I would personally favour.

Another suggested alternative, which has its advantages is daily tapping on a quarter section, in conjunction with "rotational resting" of one quarter of the bearing area for a period of four months every year, tapping only 75 per cent. of the bearing area at any one time; each section thus being under a period of "rest" during the wintering season every four years.

The system is, of course, lighter than continuous daily tapping, but I have not yet seen comparative yields from same, and doubt whether the "rest" will compensate for 25 per cent. of the bearing area being out of commission. More labour will, of course, be requested than would be with alternate day tapping, and the collection of rubber per tapper per day will be less, which will mean higher tapping costs.

As a permanent system for alternate day tapping, the "V" or "half spiral" cut is at present most popular; the former mostly in the coastal districts of Selangor, and the latter in the Negri Sembilan and in parts of Johore,

The "V" cut has given very fine results both as regards yields and bark renewal, and so far as actual crop is concerned I do not consider there is anything much in the merits of either system.

An objection to the "V" is that the tappers almost invariably "pull" their knives at the apex of the "V" incision, with the result that consumption of bark at this point is heavier than at the starting point at either wing of the "V" while another objection to the system is that wounding is often thus caused at the channel.

The half spiral cut becomes unwieldy as the trees increase in size, and for this reason is not generally adopted for longer than excision of the virgin basal bark. The angle of the half spiral cut is too acute for economical bark consumption and there is a wastage at the base; another objection is that the latex has a long way to flow to get to the channel, which fact increases the percentage of lower grades. The half spiral cut is, moreover, awkward and very difficult for the tapper to tap one continuous cut without changing his position at least three times during the operation.

It has been my endeavour, during the past two years, to evolve to receive a change of system which would overcome and eliminate these foregoing objections without detriment to yields, and I believe I have been successful in doing so by the adoption of a "semi-crescent" cut (S.C.A.D.) system. With this system of tapping the angle of the cut is less acute, and in consequence more cuts per inch are obtained from the bark excised (the steeper the angle of the cut the less cuts per vertical inch of bark excised).

This system of tapping is very much favoured by the tappers, once they get into the way of it, and the operation is easier and very much more rapid. Excision consists of a downward and then upward movement, passing right over the channel, without changing the position of the tapper. The flow of latex is equal from both sides, and the objection to the half spiral cut are thereby removed, as is also the excessive bark consumption and wounding at the apex of the "V" cut.

I am strongly of opinion that this system of tapping, if followed from the inception of operations, will give excellent all-round results, and I have therefore no hesitation in recommending same.

The following table is my standard for opening trees:—

Tapping.	Bark.	Height from Base of Tree. First Half. ins.	Second Half. ins.
First Cycle ...	Virgin ...	20	26
Second Cycle ...	1st Renewal ...	38	38
Third ,, ...	2nd do ...	38	38
Fourth ,, ...	3rd do ...	38	38
Fifth ,, ...	4th do ...	38	38
Sixth ,, ...	5th do ...	38	38
Total bark consumption ...		210	216
Less 2 ins. for cup and spout ...		12	12
Net bark consumption ...		198	204

Allowing as much as 1 in. of bark per month, we get from the above 33½ years' continuous tapping; or if we aim at a more conservative consumption of ¾ in. of bark per month, we obtain no less than 44 years' tapping without having to call upon the tree for more than five renewals of bark.

The commercial "life" of the tree, as originally set out, could therefore be obtained with only six cycles of tapping, even with consumption at 1 in. per month, or from four cycles of renewal with a consumption of ¾ in. per month. which is the standard to be aimed at for alternate day tapping; if this is obtained there would never be any question as to the sufficiency of mature bark

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LETTERS TO THE EDITOR.

(*The Planters' Chronicle is not responsible for the opinion of its Correspondents.*)

Cochin, 30th August, 1921.

The Editor,
The "Planters' Chronicle,"
Coimbatore.

Shipping.

Dear Sir,—Our attention has been drawn to a resolution proposed by Mr. J. B. Cook, and seconded by Mr. A. C. Morrell at the U.P.A.S.I. meeting in connection with a shortage of tonnage on the West Coast which Mr. Cook added was not likely to improve in the near future. Both these gentlemen ship their cargo through this port, to the best of our knowledge, and we must, therefore, ask for space to contradict the statement which must, we think, have been made without adequate enquiry.

Cochin has been as well supplied with tonnage this year as has ever been usual in the past during the monsoon months. In the past it has not been customary to load steamers here during the months of June and July, but this year the s.s. "Clan Macvicar" was here during the first half of June. A lapse of six weeks only occurred, during the monsoon months, and the s.s. "Newby Hall" arrived on the 3rd August, and lifted all Estate cargo that was offering.

As regards the future, we are afraid Mr. Cook has been particularly badly informed as we think the following fixtures, all with ample space, will prove:—

S.S.	"City of Rangoon"	due	15th September
,,	"Clan Kenneth"	,,	23rd ,,
,,	"Clan Mackinnon"	,,	1st half October.
,,	"Clan Urquhart"	,,	2nd ,, ,,

We are, Dear Sir,
Yours faithfully,
Per pro Peirce, Leslie & Co., Ltd.,
Agents, Clan Line.

Per pro Aspinwall & Co., Ltd.,
Manager,
Agents, Ellerman Lines, Ltd.

The Executive Committee.

Dear Sir,—I shall be much obliged if you will let me know through the medium of the Chronicle, the method by which the voting for the Executive Committee was carried out at the Annual General Meeting, held at Bangalore the other day.

We were handed a slip giving 2 lines marked 1 and 2 each for Tea Rubber and Coffee, and personally, and I know others had the same idea, I took those numbers to be 1 for the Executive Member, and 2 for the Member-in-Waiting. In view, however, of the result of the voting I know now that this idea was wrong, and I shall be glad if you will kindly enlighten me as to how the votes were actually counted.

Yours truly,

DELEGATE.

[NOTE BY *Ed. P. C.*—We are informed by the Secretary, U.P.A.S.I., that the numbers 1 and 2 did not represent the Executive member and member-in-waiting, respectively. They merely indicated that two gentlemen were to be voted for. The election was decided on the grand total of votes received by each individual, whether on the line marked 1 or the line marked 2].

The Planters' Chronicle.

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EDWIN VINCENT,
Managing Editor, *Coimbatore*, S. India.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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EDITORIAL NOTES.

The Labour Department.

We are asked to call the attention of subscribers who use the Mysore Division of the Labour Department to the change of address of the Office of that division. The Office is situated near the Exhibition Hall, Mysore, and the Superintendent would be glad if Maistries going to Mysore were informed of the fact.

The Rubber Producers' Corporation, Limited.

The Secretary, U. P. A. S. I. sends us the following note:—

" In the " Chronicle " issue of the 30th July last the particulars of the proposed Rubber Producers' Corporation were given in detail, and Provisional assents on the part of Local Companies were asked for.

"Up to the present the Secretary, Local Branch, R. G. A., Coimbatore has not received a single reply from any Rupee (? Rubber) Company."

The Rubber Growers' Association in London have now cabled as follows:—

> "RUBBER PRODUCERS' CORPORATION NOTIFYING PRODUCERS FORWARD ASSENTS BEFORE TWENTY-FOURTH SEPTEMBER STOP TELEGRAPH TO US TOTAL ACREAGE SUPPORT AT THAT DATE."

It is requested that all Local Companies will communicate with "the Secretary, Coimbatore as soon as possible, stating if their Companies are prepared to assent to the scheme or not."

The Little Sisters of the Poor.

At the Annual Meeting of the U. P. A. S. I. a list was sent round, and several delegates promised donations to this very deserving charity. One delegate paid his donation, but the list has unfortunately been mislaid, and the remaining promised subscriptions have not been collected. The Editor appeals to all delegates to send him the amounts promised, which will be duly acknowledged and forwarded to the proper quarter.

Alternative Crops.

In view of the discussion at the Annual Meeting on this question we may refer our readers to an interesting volume on Indian jute and silk which has just been published by Mr. John Murray (price 5s.) in the series of Reports of the Indian Trade Enquiry conducted at the Imperial Institute under the auspices of the Committee for India of the Institute.

The first part of the volume deals with the results of an enquiry into the possibility of the increased commercial utilisation of jute and allied Indian fibres, and contains three appendices comprising respectively, statistical tables, summary of evidence of witnesses, and a copy of a Report of the Committee of the Indian Jute Mills Association on the subject of trade after the war. India, at present, has a monopoly in the production of jute, and the recommendations of the Imperial Institute Committee refer chiefly to the question of keeping the trade in the fibre and its utilisation within the Empire and of improving the quality and yield.

The portion of the volume devoted to silk consists of two parts: (1) a report on the question of the prospects of an increased utilisation of Indian silk within the Empire, and (2) a detailed statement prepared at the Imperial Institute on the silk trade of the world. The production of raw silk in India at present is insufficient to meet local needs, and large quantities of both raw silk and silk yarn are imported for use in the Indian mills. The opinion is expressed, however, that the enhanced value of Indian silk which would result from a radical improvement in its quality, and standard of reeling should render it possible for the Indian product to compete successfully with Japanese and Chinese silks. The types of silk both cultivated and wild, which are most likely to find a market in the United Kingdom are indicated.

Utilisation of Waste Timber and Cotton Stalks.

An enormous amount of wood is wasted in the process of converting the felled tree into merchantable timber. It has been estimated that, in the United States alone, the quantity of wood waste produced annually in the saw mills amounts to 4,000 million cubic feet. Much of the wood at present wasted could be utilised for such purposes as the manufacture of paper pulp, and the production of turpentine, acetic acid, and other products. The question has recently received consideration in New Zealand, and it has been suggested that the waste, in some instances, might be used for paper-making in place of imported wood-pulp. In order to ascertain the suitability of certain New Zealand timber for this purpose, an investigation has been conducted at the Imperial Institute, the results of which are recorded in the current number of its quarterly *Bulletin*. It was found that the timbers examined could all be used for the manufacture of paper pulp, but whether such an industry would be profitable in New Zealand would depend on purely economic factors, such as the quantity of waste wood available, its cost at the pulp-mill, and the price of fuel and chemicals, etc.

Another article in the same *Bulletin* deals with the problem of the commercial utilisation in cotton growing countries of the vast quantities of cotton stalks which are produced each year and have to be removed from the fields after the cotton crop has been gathered. Investigation [illegible] the Imperial Institute has shown that the stalks form a promising material for paper-making, and that they might also be used for obtaining acetic acid, tar and charcoal by a process of dry distillation.

The Rubber Market.

The *India Rubber Journal's* correspondent "Macson" writes under date, 11th August, 1921 :—

Some interesting new features are unfolding themselves in our market.

The healthier tone continues to manifest itself, and confidence is gradually taking the place of apathy.

Were it possible to sell and meet the enquiry for next year positions to American and Continental consumers, that confidence in the future would register itself in a very practicable way by a smart price advance. The violent fluctuations in the exchange, however, make such forward business quite impossible, by adding a far too serious risk to that incurred in the ordinary way. Our market has already shown its appreciation of this difficulty by the weakness of quotations for forward positions.

We have seen large London stocks carried by being made a basis for any requirements or speculation in futures. The very large and natural outlet of this forward business is closed to our market, and this feature is quite a serious one. It will tend to keep stocks in London unsold till the period of delivery is short enough to avoid the exchange difficulty.

The London stocks have increased this week.

American improved trade conditions is reflected by the large business done in c. i. f. New York, and by the Good-year August call for rubber being larger than last month.

Continental enquiry has helped to advance the price of smoked sheets, but crepe has felt the pinch of the weak point in futures, it being more the grade nominated in forward contracts.

Ceylon Tea.

Exports of Ceylon Tea by rail to S. India *via* Talaimannar show a distinct falling off. According to the "Ceylon Chamber of Commerce," Weekly Price Current the following are the figures for August :—

	lbs.		lbs.
Tirur ...	1,950	Trichinopoly ...	183
Ayyampet ...	1,618	Dhanushkodi ...	95
Trichur ...	855	Adirampatnam ...	90
Cannanore ...	700	Madras ...	80
Madura ...	462	Mangalore ...	77
Ramnad ...	398		

a grand total of 6,508 lbs.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT No. 14.

The Deputy Director of Agriculture, Planting Districts, returned to Head-quarters on Saturday, 3rd September. After leaving Bangalore, Mr. Anstead paid a visit of inspection to a Coffee Estate near Ooty, and then went to Coonoor, where he inspected the Fruit Farm and picked out a possible site for the Planting Mycological Station in Sims Park. On his way back to Coimbatore he inspected the small Coffee Experiment Station at Benhope.

2. THE EXPERIMENT STATIONS.—At the Coffee Experiment Station a dry hot week was experienced, the rainfall being only 1'01 inches. Planting of secondary shade has now been completed, a total of 3756 *Erythrina lithosperma* stakes having been put out. Permanent shade plants have been put out in the Hybrid plots. Sickle weeding has been done over 4½ acres, and the green manure plots have been weeded.

At the Tea Experiment Station, light showers fell each afternoon, and a total of 3'57 inches was registered. This weather has improved the yield, and 384 lbs. of leaf were plucked from 9'79 acres. A new nursery has been made.

At the Rubber Experiment Station, Mooply, bright fine weather has been experienced, and only 0'78 inches was recorded. Damage done by the recent floods is being repaired, drains cleaned, and dead wood brought in removed. Tapping was done daily, and a yield of 64 lbs. of wet rubber and 13½ lbs. wet scrap obtained. Some of the trees which had lost their leaves due to an attack of *Phytophthora Meadii* are beginning to put out new foliage. Seedlings in the seed selection plot are coming up well.

At the Rubber Experiment Station, Tenmalai, only 0'25 inches of rain was recorded. The trees in Plots 1 to 9 were marked for tapping, guide lines being painted to avoid any cuts which will isolate bark and tend to induce Brown Bast. The roller has been received and fitted up.

(Signed) RUDOLPH D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

7-ix-21

U. P. A. S. I. General Committee.

Proceedings of a Meeting of the General Committee of the United Planters' Association of Southern India, held at the Mayo Hall, Bangalore, on Monday, 22nd August, 1921, commencing at 10·30 a.m.

PRESENT—Mr. C. R. T. Congreve ... (Chairman)
Mr. J. A. Richardson (Planting Member)

and the following representatives of District Associations:—

Anamallais	... Messrs. J Hatton Robinson and E. W. Simcock
Bababudins	... Messrs. S. H. Dennis and N. G. B. Kirwan
C. Travancore	... Messrs. A. R. St. George and H. C. Westaway
Coorg	... Messrs. W. Egerton and F. Macrae
Kanan Devan	... Messrs. H. L. Pinches and J. S. Hawkins
Mundakayam	... Mr. J. R. Vincent
Nilgiris	... Messrs. A. S. Dandison and A. K Weld Downing
Nilgiri-Wynaad	... Messrs. J. Aird and R. Fowke
North Mysore	... Messrs. C. H. Godfrey and E. L. Poyser
Shevaroys	... Messrs. V. L. Travers Drapes and C. D. Ryle
South Mysore	... Lt.-Col. W. L. Crawford and Mr. C. Lake
S. Travancore	... Messrs. J. B. Cook and J. Mackie
West Coast	... Mr. A. C. Morrell
Wynaad	... Messrs. C. E. Abbott and S. H. Powell

Also Messrs. E. Vincent and C. H. Brock (Acting Secretary).

Read notice calling the meeting.

The proceedings of the last meeting of the General Committee, held on 6th December, 1920, were taken as read and confirmed.

ELECTION OF MEMBERS.—The following Firms were unanimously elected Members of the Association under Article 3 (c):—

The Anupura Coffee Works Co., Ltd , Coimbatore.
Bayly & Brock, Ltd., Donnington, Nilgiris.
The Madura Co., Ltd., Cochin.
The United Coffee Supply Co., Ltd., Coimbatore.

ANNUAL MEETING.—The programme of the order of business was approved, and the Agenda paper revised.

SUBSCRIPTION.—It was proposed from the Chair and carried unanimously that the extra two annas per acre subscription be re-voted for the current financial year, and the Secretary was instructed to call up this subscription in the current quarter.

BUDGET.—The Budget for 1921-22, as finally amended by the Executive Committee was passed.

WORKMEN'S COMPENSATION ACT.—Mr. Richardson read a memorandum from the Government of India proposing legislation for Workmen's Compensation. A Committee consisting of Messrs. Mackie, Pinches, Richardson and Sir Fairless Barber were appointed to examine the recommendations and proposals, and to instruct the Planting Member as to the reply to be forwarded to Government.

The meeting terminated at 11·45 a. m.

(Signed) C. R. T. CONGREVE,
Chairman.

(Signed) C. H. BROCK,
Ag. Secretary.

U. P. A. S. I. GENERAL COMMITTEE.

Proceedings of a Meeting of the General Committee of the United Planters' Association of Southern India, held at the Mayo Hall, Bangalore, on Thursday, 25th August, 1921, at 3 p. m.

PRESENT.—Mr. H. L. Pinches ... ... (Chairman)
Mr. J. A. Richardson ... ... (Planting Member)

and the following representatives of District Associations:—

Anamallais	...	Messrs. J. Hatton Robinson and E. W. Simcock.
Bababudins	...	Messrs. S. H. Dennis and N. G. B. Kirwan.
C. Travancore	...	Messrs. A. R. St. George and H. C. Westaway.
Kanan Devans	...	Mr. J. S. Hawkins.
Mundakayam	...	Mr. J. R. Vincent.
Nilgiris	...	Messrs. A. S. Dandison and A. K. Weld Downing.
Nilgiri-Wynaad	...	Messrs. J. Aird and R. Fowke.
North Mysore	...	Lt. Col. W. L. Crawford and Mr. C. Lake.
Shevaroys	...	Messrs. V. L. Travers Drapes and C. D. Ryle.
South Mysore	...	Lt. Col. W. L. Crawford and Mr. C. Lake.
S. Travancore	...	Messrs. J. B. Cook and J. Mackie.
West Coast	...	Mr. A. C. Morrell.
Wynaad	...	Messrs. C. E. Abbott and S. H. Powell.

Also Mr. C. H. Brock—Acting Secretary.

Read notice calling the Meeting.

The Proceedings of the last meeting of the General Committee, held on 22nd August, 1921, were read and confirmed.

ELECTION OF EXECUTIVE COMMITTEE.—The election, by ballot, of the members of the Executive Committee was then proceeded with, and the Chairman declared that the result of the ballot was:—

		Members.		Members-in-waiting.
Tea	...	J. Hatton Robinson	...	A. S. Dandison.
Rubber	...	J. R. Vincent	...	A. C. Morrell.
Coffee	...	Lt. Col. Crawford, D. S. O.	...	C. Lake.

U. P. A. S. I. RULES.—The following alterations in U. P. A. S. I. Rules Nos. I and IX, which were resolved on at the Annual General Meeting, were adopted:—

(a) That in Rule I of the U. P. A. S. I., for the words "15th March" read "first day of January."

(b) That the Rule IX of the U. P. A. S. I., for the words "first of March" read "first day of February."

LABOUR RULES.—The following Rule resolved on at the Annual General Meeting was adopted as an addition to the Labour Rules:—

Rule X. No Association or member of an Association shall raise the pay of coolies without giving six months' notice of their intentions to the Labour Department, for circulation to other Associations.

The Amendments of the Labour Rules as suggested in Resolutions Nos. 24 and 27 of the Annual General Meeting were referred to the Executive Committee, to be drafted and submitted to District Associations before the next meeting of the General Committee.

S. I. P. B. F.—The Secretary was instructed as to further assistance to be granted.

The meeting terminated at 3-30 p. m.

(Signed) H. L. PINCHES,
Chairman.

(Signed) C. H. BROCK,
Ag. Secretary.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

SECRETARY'S REPORT No. 28.

7th September, 1921.

Owing to the amount of work in connection with the Annual General Meeting at Bangalore, no reports were issued during the month of August.

1. The following is a brief Report on the action that has been taken in connection with the Resolutions passed at the Annual Meeting. The numbers of the Resolutions are those given in the list of Resolutions passed and published in the "Planters' Chronicle" issue of the 27th August, pages 573 to 578.

2. SUBSCRIPTIONS.—Resolutions Nos. 2 and 29 have been communicated to all District Associations. The subscriptions for the second quarter have been called up, as has the extra Two Anna Cess for the current year, as was resolved by the General Committee at its Meeting, held on the 22nd August.

3. LABOUR LAWS.—Resolution No. 10 has been communicated to the Government of Madras, and a copy of the letter has been forwarded to the Planting Member for information.

4. MALABAR TENANTS' IMPROVEMENT ACT.—Resolution No. 11 has also been communicated to the Government of Madras, with the request that, while recognising that the unsettled state of Malabar at the moment may cause some delay in dealing with the subject, it may be given priority as soon as circumstances permit.

5. HARBOURS.—A cable, as directed in Resolution No. 12, was despatched to the Secretary of State for India, and a letter confirming it has also been written. Copies of both have been submitted to the Government of Madras for information.

6. EXPORT DUTY ON TEA.—Resolution No. 13 has been forwarded to the Government of Madras, with the request that it be forwarded to the Government of India. In so doing attention was drawn to previous correspondence with Government on the subject which argued the necessity for the abolition of this duty, and it was pointed out that the heavy Import Duty on Tea in the United Kingdom is of considerable assistance to the Imperial Finances of the Empire, and that an export tax on the same product from India combined to restrict the increase of consumption, which is hoped for in order to relieve over-stocked markets.

7. ROADS.—Resolutions Nos. 14 and 15 have been forwarded to the Government of Madras, with direct requests for information as to what improvements are going to be made in the roads referred to, and when these improvements are likely to be made. In regard to the latter resolution, a special reference has been made to the list of roads submitted to Government in 1919 in connection with the resolution passed in that year.

8. RATES OF PAY.—A Circular has been sent to all District Associations drawing attention to Resolution No. 16, and a table of the Returns required has been drawn up in order to facilitate reference when submitting the returns to the South Indian Association in London.

9. INCORPORATION OF DISTRICT ASSOCIATIONS.—The Solicitors of the Association have submitted a note explaining the position as regards the progress in respect of each District Association, and copies of this have been forwarded to the Executive Committee for information. In every case the delays have been due to the length of time the documents have been with the respective Governments concerned, as they have had them for over seven months. It is impossible in such circumstances to say how long the completion of the incorporation will take, but our Solicitors assure me that they are doing their utmost to expedite proceedings.

10. STATISTICS AND MANURES.—The resolutions on these two subjects, Nos. 17 and 19 have been forwarded to the Government of Madras, with requests that they be forwarded to the Government of India, and the Local Government has been specially asked to give their support to these resolutions then submitting them to the Supreme Government.

11. RUBBER OUTPUT RESTRICTION.—Resolution No. 28 has been forwarded to the Rubber Growers' Association, and a copy has been sent to the South Indian Association in London asking for their co-operation and support.

12. BOOK OF PROCEEDINGS.—Owing to the *Madras Mail* having sent their Reporter to Malabar, I fear that there may be some delay in getting the Book of Proceedings ready. It was expected to be able to have it completed and issued as quickly as was done last year, but I do not think that this will be possible. However, we are doing all we can to hasten its publication, and trust that the delay will only be a matter of a few days later than last year's record.

(Signed) C. H. BROCK,
Acting Secretary.

RUBBER TRADE ASSOCIATION OF LONDON.

Monthly Statistics.

AUGUST, 1921.

Movements of all kinds of Rubber to and from the United Kingdom as per BOARD OF TRADE RETURNS.

IMPORTS.

From	July.			Seven Months ended July.		
	1921.	1920.	1913.	1921.	1920.	1913
Straits Settlements and F. M. S. ...	4,154	5,664	1,712	33,995	32,314	13,471
Ceylon and British India ...	1,149	1,875	411	12,022	14,586	3,564
Dutch East Indies, &c. ...	1,460	731	133	10,819	6,347	754
Brazil and Peru ...	202	1,072	877	1,310	5,993	12,106
Other Countries ...	19	234	1,741	504	1,940	11,466
Total Tons ...	6,984	9,576	4,874	58,650	61,180	41,361

EXPORTS.

To	July.			Seven months ended July.		
	1921.	1920.	1913.	1921.	1920.	1913.
United States of America ...	1,588	1,096	1,421	5,810	23,377	9,325
Canada ...	—	98	33	35	2,508	292
France ...	805	1,196	391	2,479	9,188	2,800
Belgium ...	108	169	143	589	1,755	1,134
Italy ...	164	180	10	600	2,103	129
Spain ...	9	23	12	70	124	48
Germany, Austria, Hungary ...	458	384	698	4,102	2,672	6,384
Russia ...	13	—	392	14	26	3,931
Sweden, Norway and Denmark ...	21	99	54	535	743	440
Other Countries in Europe ...	93	20	62	896	477	735
Other Extra European Countries...	—	186	55	40	732	445
Total Tons ...	3,259	3,451	3,271	15,170	43,705	25,663

Landings, Deliveries and Stocks in London and Liverpool as returned by the Warehouses and Wharves during the month of July.

		Landed for July.	Delivered for July.	Stocks 31st July.		
				1921.	1920.	1919.
London ...	Plantation	6,124	4,465	70,670	24,806	27,302
	Other Grades...	...	2	395	540	587
Liverpool...	Plantation ...	1,145†	615†	8,077†	926†	2,997†
	Para & Peruvian	200	150	1,100	1,025	1,184
	Other Grades.,	...	...	460	447	428
Totals London & Liverpool...		7,469	5,232	80,702	27,744	32,498

† Official Returns from the six recognised Public Warehouses.

Movements of all kinds of Rubber, excluding Gutta, Balata and Guayule, to and from the U. S. A., as per Returns of the United States Department of Commerce.

	May.			Five Months ended May.		
	1921.	1920.	1919.	1921.	1920.	1919.
IMPORTS ...	10,665	19,687	24,767	56,846	146,423	106,442
EXPORTS ...	415	245	168	2,294	1,184	762

Receipts at Para.

	June.			Jan./June (6 months).		
	1921.	1920.	1919.	1921.	1920.	1919.
Rubber ...	584	990	1,260	7,661	12,890	13,775
Caucho ...	591	910	510	2,671	4,490	4,290
Total...	1,175	1,900	1,770	10,332	17,380	18,065

INDIAN TEA ASSOCIATION.

ABSTRACT OF PROCEEDINGS OF A MEETING OF THE GENERAL COMMITTEE, HELD AT CALCUTTA, ON 16TH AUGUST, 1921.

PROCEEDINGS.—The proceedings of the last meeting of the Committee, which was held on the 2nd August, were confirmed after previous approval in circulation.

CORRESPONDENCE WITH THE INDIAN TEA ASSOCIATION (LONDON).—A letter, dated 21st July from the Indian Tea Association (London) which had been circulated to the Committee, was now to be recorded.

ACT XIII OF 1859.—The Chairman referred to a recent judgment in the High Court, Calcutta, in connection with an appeal from the decision of the local Court in an Act XIII case. He thought it desirable that the Association should, if possible, obtain a copy of the judgment, and the Vice-Chairman, in whose firm's agency the estate concerned, was arranged to furnish a copy to the Association.

TEA SHIPPING BILLS UNDER DEPOSIT ACCOUNT.—The Committee had received, and had read with interest, copy of a letter, dated 8th August, addressed by Messrs. Barlow & Co., to the Collector of Customs, Calcutta, regarding a proposed alteration in the procedure connected with tea shipping bills under deposit accounts, and suggesting that the existing system should be adhered to. The letter was to be recorded.

STATISTICS OF THE PRODUCTION OF TEA IN INDIA FOR 1920.—In a letter, dated 8th August, the Director of Statistics stated that his Department was collecting information regarding the production of tea in India for 1920, and in this connection he forwarded for criticism by the Association several tables which it was proposed to incorporate in the usual publication on the subject. The Committee had examined these tables in circulation, and they had no remarks to offer regarding the figures in them. The Director of Statistics was to be informed accordingly.

INDIAN INCOME TAX ACT, 1918: LIABILITY FOR THE DEDUCTION OF INCOME TAX FROM EMPLOYEES' SALARIES, AND FOR THE SUBMISSION OF THE ANNUAL RETURN UNDER SECTION 16.—This matter was last referred to in the published proceedings of 25th May. The Committee had now received from the Darjeeling and Dooars Sub-Committee, to whom the question had been remitted for disposal, copies of two circulars issued by them, dated respectively 8th July and 2nd August, to agency houses with Dooars interests. These explained very fully the points that had been discussed with the Deputy Commissioner of Jalpaiguri, and the agreement arrived at with him regarding these. While a similar position had not as yet arisen in any of the other districts, the Committee considered it would be useful to issue copies of these circulars for information and guidance in case of need, to agency houses generally, and to send copies to the Branches and local Associations; and they directed accordingly.

INDIAN TEA CESS COMMITTEE.—A letter dated 3rd August had been received from the Secretary, Indian Tea Cess Committee, forwarding a copy of the report of that Committee for the year ended 31st March, 1921. The letter was to be acknowledged and recorded.

SCHOOL OF TROPICAL MEDICINE, CALCUTTA.—As explained in the report for 1920, the arrangement made some years ago, under which the tea, jute mills and mining industries agreed to contribute each a sum of

Rs. 20,000 annually for five years towards research work in connection with this school, came into effect last year, when the first year's subscriptions were collected and paid over. The original arrangement was that members were invited to contribute on a basis of one anna per acre, and the result of the reference made in 1920 to those who had undertaken to subscribe on this basis was that a sum of Rs 20,498-3-0 was received, and some Rs.2,650 was not, for one reason or another, paid.

The question of the subscriptions for 1921 was now considered. The suggestion was made that it would be more equitable if the industry's contribution of Rs. 20,000 annually were paid out of the funds of the Association, as the burden would then fall equally on all members instead of falling on some members of the Association only, but meantime no decision in regard to this point was adopted. It was, however, agreed in the first place to refer to the Director of the School of Tropical Medicine for information as to developments and progress during the year which could be furnished by the Committee to subscribers.

TEA SALES.—The Committee decided to write to the Calcutta Tea Traders Association stating that it had been brought to their notice that an innovation had been introduced in connection with tea sales, namely, that bids were made at the sale "subject to reply by to-night"; and that they deprecated the attempt to depart from the Conditions of Sale, and considered that no bids should be registered unless these held good until 1 p. m. on the day following the sale day..

SOME RECENT WORK ON SEEDS

BY

W. BURNS, D. SC.

The problems presented by the life and death of a seed are as yet by no means solved. A brief survey of some recent scientific work on these problems may be of interest to readers of this magazine both as practical farmers and as scientists.

The seed, as all know, is a living plant (the embryo) associated with a store of food material either in its seed leaves or outside it in the endosperm, the whole enclosed in one or more seed coats of a texture which varies in different plants. That this plant is alive for a time at least is shown by the fact that it can be made to grow if we supply the appropriate conditions of temperature and moisture. It is unthinkable that any living organism should die and then come to life again, hence we must assume that, however old a seed is, if it can be made to germinate the embryo must have been alive all the time. There have been various stories current regarding seed of excessive age which nevertheless germinated. The most famous of these is the story of the "mummy wheat" taken from the sarchopagi of some of the Egyptian monuments, which seed was said to germinate. The facts of this story are as follows.

A certain explorer named Unger discovered a grain of wheat in a brick from the pyramid of Dashur the date of which is known to be about 3300 B. C. Later Sir Gardner Wilkinson stated that in the sepulchres of Thebes, of somewhere about the same date grains of wheat and other seeds were found dry and preserved, and he apparently said that these might possibly germinate. Unger actually tried the experiment, but got no germination. Another worker, Steinberg, said that he did get success, but his experiment is under grave suspicion, as the actual source of the seeds with which he experimented is doubtful. Such is human nature, however, that once the rumour got abroad that wheat seeds had been discovered in Egyptian tombs and that perhaps they might germinate, then immediately the story began to grow and to receive additions in the telling (as stories always do) until even to this day quite a number of people believe that wheat found in Egyptian tombs did germinate.

Actual scientific data above suspicion are, however, forthcoming regarding the longevity of seeds. In the Gardeners' Chronicle of July 7, 1909. will be found an interesting article on the life and death of seeds. Therein is recorded some observations by Ewart in Melbourne, Australia, on the germination of seeds taken from dated museum specimens which had been kept for over 25 years. About ten per cent of the species tested gave positive results. Of these a specimen of seeds or *Hovea linearis*, 105 years old, germinated and also a specimen of *Cassia bicapsularis* 87 years old. In general seeds of the Leguminosae in this experiment were most long-lived. It is likely that this was due to the hard coat surrounding such seeds. Of course many of the Leguminosae that are used as crop plants have not hard seeds, but on the other hand many of the wild species do. One has only to think of the babul and also of that plant known as *Gazga* with the seeds of which the little girls of the Maharashtra play the game called (in some places) Panchki. It is an interesting fact that this game and about four others are common to India and Britain. It would be a most interesting research to find out their origin and how they came to be games of the children of both countries.

Perfect drying is one of the best means of increasing the life of seeds when stored. Just as iron when damp rusts, that is, oxidises, so seeds containing moisture slowly oxidise and thus lose their power to germinate. Really dry seeds can also stand extremes of temperature much better. Becquerel, in Paris, showed that ordinary dry seeds were not affected by a cold of minus 250° C and that a heat of 100° C. does not kill such seeds either.

Perfect drying will, of course, not preserve any seed indefinitely. There is an actual limit to the length of time a seed will live, and this limit is different for different species. Actual experiment has shown us that the mango seed, for example, does not usually live for more than a month. This is, of course, one of the most short-lived of seeds. Most of our cereals suffer considerable falling off in germination percentage after two years. This month I received a sample of two-year-old rice seeds that entirely failed to germinate in ten days. In Canada experiments showed that wheat remained constant for six years, and fell off till the 11th.

But seeds may be alive and still fail to germinate for some reason. One of the commonest reasons is the thickness and impenetrability of the seed coat. The seed coat of babul is amazingly thick and resistant, and the germination percentage in ordinary conditions is correspondingly low, being only from ten to twenty per cent. Steeping in water of 80 degrees. Centigrade increased the germination percentage to 78. It was found that steeping the seed in strong sulphuric acid for six hours and then sowing, raised the germination percentage to 86. This shows how resistant the coat is. Similar treatment for hard seeds, namely the use of sulphuric acid, was recommended by Finlow and Bergtheil in 1913 (1).

Hard coatedness is of course, merely a physical obstacle presenting no very great difficulties. More difficult to tackle are the physiological obstacles offered by some seeds.

There appears to be no doubt that the germination of many seeds will not take place until certain ripening processes have occurred within the seed. The exact natpre of these processes is obscure, but there seems to be no doubt that the development of certain ferments, such as oxidases and catalases, is necessary. The hastening of such ripening can be done in various ways. It is found, for example, that the seeds of wheat, barley, rye and oats sown immediately after threshing give a percentage of germination much lower than that obtained if the same seed is dried or is kept without special drying for two or three weeks (2).

In the case of Juniper seeds, storage at 5 degrees Centigrade brought about the necessary ripening (3). De Vries found that soaking under pressure improved the percentage of germination of *Oenothera* seeds (4). In the case of orchid seeds it appears that in some cases at least the presence of a fungus symbiont is required before the seed will germinate (5). We have not yet in our laboratories succeeded in getting the seed of the parasite ***Striga*** (Marathi : *Tahuli or Tavali*) to germinate, although it is said that contact with the host root will induce germination.

It has been claimed that electrification of the seed by passing an electric current through a salt solution in which the seeds are contained has increased germination, but the evidence for this is not conclusive (6),

It is stated that Johnson Grass (*Holcus halepensis*) germinates best after being exposed to alternating temperatures while the closely allied Sudan grass (*Holcus halepensis sudanensis*) requires a constant temperature (7).

In conclusion, how are we to think of the condition of the embryo during these long periods of dormancy ? We must consider it alive. But what sort of life is this ? How can we prove it alive ? One sign of life is respiration, and if one could detect a constant output of carbonic acid gas, even in small quantities, then one would consider life present. Delicate experiments have been made to settle this point, but different observers have got conflicting results. The life must be some sort of static equilibrium as opposed to the dynamic equilibrium of the actively growing plant, but we are still in the dark as to its exact nature. That we shall not always be so ignorant we may be sure, for no question put by nature is impossible of solution by the brain of man.—(Poona, Agricultural College Magazine).

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(1) Finlow and Bergtheil. A Method for Producing Immediate Germination of Hardcoated Seeds. Journal Asiatic Society of Bengal, New Series, Vol. III, p. 625.

(2) Stapleton and Adams. The Effect of Drying on Germination. Journal Board of Agriculture, 1919, July. XXVI, 4, pp. 364-381.

(3) Pack. The Physiology of Germinating Juniperus Seeds. Science, April 9, 1920, p. 374.

(4) Gardeners Chronicle. March 23, 1918, No. 4030, p. 124.

(5) Ditto. Aug. 28, 1920, p. 112.

(6) Ditto. March 6, 1920, p. 113.

(7) T. G. M. Dormancy in Seeds. Agric. News, XIX, 482, Oct. 16, 1920, p. 330.

THE CULTIVATION OF HEVEA IN THE BELGIAN CONGO.

In the course of a lecture delivered in connection with the International Rubber Conference, Professor Edmond Leplae (Director-General of Agriculture, Belgian Colonial Office), speaking on the cultivation of Hevea in the Belgian Congo, said that rubber had been planted in that country for upwards of seventeen years. In the first place, the seed had come from Brazil, although latterly seed had been imported from Ceylon and Malaya. The total acreage in the Congo was not more than about 5,000, most of which had been planted by the Government as an experiment, although private companies were also interested. These experiments had been made at a great cost, and demonstrated that the growing of rubber was more than a physical possibility; in fact, the trees succeeded very well.

The soil was sandy, except in the case of the coast, where loamy soil was met with. The rubber was planted very close, as was the rule ten to fifteen years ago, an interval of nine feet between the trees being maintained. In this closely planted rubber and loamy soil they experienced practically no trouble from root disease. In sandy soil, even with 20 feet distance between the trees, root diseases were common.

There was a very good rainfall, that in the Equatorial region being between 70 and 80 inches, while in the south 60 to 70 inches was regularly recorded. This rainfall was rather small for rubber, and the yield was less than Malaya. Trees about seven to eight years old yielded about 1 kilogram, or 2·2 lb. per year, the planting interval being about twenty feet.

The methods of planting were exactly the same as those adopted in Malaya and Ceylon. The trees were generally planted in a nursery; stumps were also used, although they were not found to be a great success. By means of photographs the lecturer showed that the plantations were quite regular in character, and that the diameter of the trunk of the trees of a given age was practically the same as in Malaya.

As in Malaya, also, they experienced trouble from several diseases, a curious fact being that such diseases as root disease, brown bast, striped canker, etc., as found in Malaya were much in evidence. He believed that those diseases pre-existed naturally in every tropical country on wild trees. As soon as the cultivation of a particular plant was commenced, the diseases set in. To prove that fact the Government had commenced the cultivation of cotton in Central Africa with successful results, but after a period of five years nearly all the diseases found in cotton cultivation were observed.

Labour was not so good in the Congo as in the East. The workmen were simply natives, who were never in a hurry, but who were rather clever in some kinds of manual work. The tapping was all done by natives, and Inspectors from Malaya who visited the plantations pronounced the work as having been well done. Those natives were much cheaper than the coolies employed in Malaya, and were not paid more than 50 centimes a day, food included. A great disadvantage, however, was that the natives would not work more than two or three months at a time.

Another difficulty was that the transportation expenses were very heavy. The Belgian Congo was about as large as one-half of Europe. The rubber was transported by a large number of steamers from the interior, and then by rail, where mountains had to be passed; finally the product was sent by ocean steamer to Europe. Inland transportation of rubber for about a thousand miles naturally entailed a high cost of production.

They had studied this point with a view to diminishing the cost, and hoped in time to find a solution. He (the speaker) had recently visited the United States in order to study the method of transport on the great rivers, and had been greatly interested in the use made by Americans of barges. On the Missouri River practically all the produce was conveyed by barge; a steam-tug propelled 10 to 50 of these barges, and it was possible to carry 5,000 to 10,000, and even 40 or 50 thousand tons of produce at the same time. He thought that probably if they used that method in the Congo they would be able to reduce the cost.

Another important point which had been studied was the use of vegetable oils as a fuel for motors. That was a very interesting point, since the cost of vegetable oils in Central Africa was little more than a 1d. to 1½d. a lb. Experiments had been made with palm oil, cotton, and ground nut oil, and it was found possible to use these oils with semi-Diesel engines, such as were used in England, employing gazoline or fuel oil, and built by all the big engineering firms. These engines were now in use on several of the Congo motor boats. Five of these boats were fitted with a 50 h. p. engine, and ran exclusively on palm oil, at a very low cost.

A very interesting method of reducing the cost of rubber had been explained by M. Chevalier, of French Cochin-China. M. Chevalier had told them that rubber was cultivated in that country on different lines to those adopted in Malaya and Java. First of all the trees were manured, and the ground treated in exactly the same way as by farmers in this country in the cultivation of fruit trees. The ground was tilled and ploughed with oxen and ploughs and harrows. A large number of cattle were kept on the plantations for the purpose of manure and to work the soil between the trees. Some estates had 2,000 to 2,900 head of cattle. As a consequence they had an increased yield, and the plantations were kept in a very good condition at a low cost.

In Cochin-China, when tapping every day or every two days, they also experienced trouble from a number of fungi diseases. On this account a number of planters had made the experiment of resting the trees periodically for a long time. The method adopted was to rest the trees for one month, and tap for a month. Deducting Sundays, when the work people of that country did not work, the trees were tapped 150 days in the year. The workmen worked very well, and it was no uncommon thing for them to cover 500 trees in a day.

The result of that experiment during the first year was a fall of 80 per cent. in the yield. During the second year a remarkable improvement was effected, and not more than 20 per cent. of the yield was lost. In the third year, and later, a larger crop was secured than before.

The result of this experiment, which was applied over a very large mileage, was that while the yield increased labour costs were considerably smaller, and nearly all the diseases disappeared. The fact that the trees were given a regular rest yearly eliminated the fungi diseases.

From what he had learnt from M. Chevalier he had great hopes that that method would be successful in the Congo. A lot of money had been spent on experimenting, with the object of finding some kind of cattle that would be resistant to the tsetse fly. Eventually, however, they had found the cattle they required on the West Coast of Africa. About 100 head of this class was imported, which in due course would multiply.

He had every hope that eventually means of effecting a substantial decrease in the cost of production of rubber in the Belgian Congo would be found.—"Indian Rubber Journal."

MARKET REPORTS.

Messrs. T. H. Allan & Co., writing under date the 17th August reports as follows :—

MONTHLY STATISTICS TO JULY 31ST.

Coffee.

	1921. Tons.	1920. Tons.	1919. Tons.
EAST INDIA—			
Landed ...	4,359	3,242	4,105
Delivered ...	3,364	1,802	2,297
Stock ...	2,035	2,583	1,902
ALL AFRICA—			
Landed ...	3,087	3,623	3,077
Delivered ...	2,423	2,006	1,585
Stock ...	2,481	2,634	2,041
COFFEE OF ALL KINDS—			
Stock in U. K. ...	20,250	23,500	26,500
Total European Imports ...	237,695	135,875	304,060
Do. Deliveries ...	241,700	175,870	200,075
Do. Stock ...	110,120	124,410	133,353
World's Visible Supply ...	530,825	389,940	584,635

Offerings in Auction have been :—

	July 27th to Aug. 16th. Offered.	 Sold.	Offered since Jan. 1st.
East India ...	1,345	1,259	50,514
Nairobi ...	1,745	1,257	48,687
Uganda ...	1,088	550	25,417
Toro ...	355	147	
Costa Rica ...	1,847	1,602	84,192
Other Milds ...	4,499	2,418	60,697
Brazil ...	2,220	1,269	35,203
Robusta ...	...	...	1,618
Tanganyika ...	841	361	7,070

Public sales were resumed on the 9th instant, and the offerings have met with a good demand at firm, and in many cases dearer prices—any fine lots have realised extreme figures. Yesterday the bulk consisted of common qualities which went very slowly.

TEA.—Shows practically no change since the interval. The very lowest grades have been slightly easier, but all others very steady with a good demand.

COCOA.—Market rather firmer.

RUBBER.—Has been very quiet, and in the absence of demand, prices have gradually slipped back to 8¼d. and 8d., but the general feeling seems to anticipate more business and firmer prices before long.

PEPPER.—After a rather better demand with some business at 5d. for Tellicherry the Market is quieter again.

CARDAMOMS.—Quiet—good qualities very steady.

EMIGRATION OF INDIAN LABOURERS.

TO CEYLON AND MALAYA.

LAST YEAR'S HEAVY DECLINE.

Figures were recently published in these columns showing the migration of Indian estate labourers to and from Ceylon, and it was pointed out that with the exception of 1918 there were fewer arrivals and departures during last year than for any other year of the past two decades. Statistics of the past ten years are now available for the Federated Malay States, and it is seen that they answer pretty much in their rise and fall to those of Ceylon.

The Malay figures since 1911 are :—

	Arrivals.				Departures.	
	State aided.		Ordinary.			
Years.	Adults.	Minors.	Adults.	Minors.	Adults.	Minors.
1911	43,996	3,405	8,746	516	26,053	870
1912	35,482	2,743	11,006	682	34,008	1,571
1913	40,688	3,391	11,161	754	38,479	1,771
1914	24,909	1,912	10,541	568	38,975	1,914
1915	18,383	1,300	5,543	351	29,783	1,324
1916	29,213	3,065	8,709	749	30,008	1,194
1917	35,306	3,511	6,504	466	31,940	1,213
1918	27,893	3,228	4,424	364	30,622	1,323
1919	32,725	2,831	5,861	746	26,830	1,169
1920	24,716	3,003	6,329	856	32,874	1,388

CEYLON FIGURES.

Minors and adults are grouped together in the Ceylon official figures. From 1911 they were :—

	Arrivals.	Departures.
1911	97,536	58,916
1912	117,475	77,840
1913	120,354	90,374
1914	78,668	105,391
1915	94,828	38,298
1916	115,713	47,588
1917	47,296	32,119
1918	43,184	23,161
1919	112,401	34,268
1920	45,946	27,581

INDIAN EMIGRATION ACT.

The Indian Emigration Act is the subject of correspondence between the Indian Immigration Committee of Malaya and the Indian Government. In the opinion of the Committee it is essential that the general policy of the Indian Government in regard to emigration to Malaya be ascertained, and that steps should be taken to ensure that Malaya will be approved as a place to which emigration will be allowed under the Bill, and, further, that Negapatam should be added to the list of ports from which emigration is allowed, so obviating the possibility of a break in the continuity of recruiting.

It is the intention of the Committee to send a deputation to India to discuss with the Indian Government the various provisions of the Bill.—*Times of Ceylon.*

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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THE RUBBER CRISIS.

We have been particularly interested recently in the issue by the Rubber Growers' Association of a circular setting forth in parallel columns objections to the proposed Rubber Producers' Corporation scheme, and the replies of the Rubber Growers' Association to such objections. It will perhaps be remembered that we published the scheme *in extenso* in these pages in July last, so that it is not necessary to do so again. We will be content with a brief statement of the objects of the Corporation, which were stated to be the control of output of its members, the fixing of the selling price and regulation of the sale of rubber, the regulation of the opening of further areas to purchase or advance on rubber harvested, and, if deemed desirable, to make advances on security to approved rubber estates.

In view of the persistent cry for unity, co-operation and the like which has been going on for some years now it is not a little strange that this scheme, so essentially a help-one-another affair, should have come in for so much criticism. At the same time, hard as it may seem to crab an attempt at co-operation we have got to admit that so far the criticism we have seen has been fair and essentially on sound lines by people, not perhaps Rubber producers themselves, but interested as shareholders, who know considerably more about the operation of the laws of supply and demand than we do. Our own view from the beginning has been that a trust or ring in any commodity within one's own borders is an unmoral thing. To combine to fight foreign domination is another thing. In this case, too, we have thought that the Rubber Growers' Association has produced something which would eventually crush its creators. It is too grandiose, too unwieldy, too ponderous to meet the requirements it aims at meeting. The best informed criticism is largely based on the objection we have mentioned to the formation of a ring or trust. Such a combine in, or "Cornering" of, a commodity to be effectual must be absolute, and the Rubber Growers' Association have possibly erred in fixing 2/3rds of the plantation area as its minimum before starting the scheme. Their explanation is that a corporation controlling the output of two-thirds of the total planted area will have the commanding position in market. Control of two-thirds of the *total* area can only be obtained with the support of 80 per cent of the area owned and managed by Europeans. Their estates are more productive and yield a higher proportion of the standard qualities than do the Chinese and Native. Hence the corporation would control more than two-thirds of the normal output, and considerably more than two-thirds of the standard qualities.

Even so, there seems to be that fatal defect that the control is only a partial control, and the competition the combine will meet with from estates outside its influence, from wild rubbers, etc., cannot be lightly set aside. A writer in the *Times* points out that it would tax the utmost powers, alike of dialectic and research, for the supporters of the scheme to prove the success in the past of a single combine in which, say, one quarter of the producers were not included in the ring. We lean more towards a theory expounded to us by a private correspondent recently, in which he pointed out the very great economies that could be effected by the amalgamation of a number of plantation companies into small groups. The present crisis has no doubt, or will certainly, send a number of unsound concerns to the wall, but in spite of this there will remain a very large number of companies, more than can effectively be got at by suggested co-operation. In an enormous numerical list such as that of the present day quite sound rubber plantation enterprises, it is extremely difficult to maintain a respectable percentage of unity, whereas amalgamation of a few individuals into groups would mean dealing with a considerably smaller number of boards and with much greater chances of unanimity. The process, we have remarked, has begun, and may possibly continue to progress; it is the duty of all who are interested in the industry to foster it and see that it does progress, for in some such system of co-operative selling by groups of estates would appear to lie our salvation. Certainly the fact that the Rubber Growers' Association is dealing with an enormous number of individuals of varying thoughts, ideas and nationalities inclines one to support the contention of Mr. H. J. Welch, who points out the unsuitability of the circumstances for such a combine as that suggested when producers are numbered in tens of thousands, and are spread over Ceylon, India (including Burma) Malaya, Sumatra, Java, Borneo, New Guinea, etc. The retort that until the effort has been made it cannot fairly be assumed that obstacles such as this are insuperable strikes us as rather feeble, since the Rubber Growers' Association have obviously proceeded on assumptions even more problematical.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT NO. 15.

The Deputy Director of Agriculture, Planting Districts, was at headquarters throughout the week, occupied with correspondence.

2. COFFEE ROOT DISEASE AND ISOLATION TRENCHES.—When patches of Coffee or Tea are attacked by root disease they should be isolated by digging a trench completely round them, to confine the disease to the particular area and prevent it spreading to the healthy bushes outside, and making the diseased patches larger and larger each year. The isolation trench should be at least three feet deep, and we have often pointed out the necessity for keeping this trench open and not allowing it to silt up till the patch within it can be tackled.

An example of how necessary this is has just come to our notice. A coffee planter writes to say that isolation trenches made some years ago confined the disease excellently, but have recently been neglected and allowed to silt up, and he finds that the disease has, in consequence, got across the trench and trees outside it hitherto unattacked by root disease are now dying. In this case, a new isolation trench will have to be made, taking in at least two more rows of trees, which might have been saved.

3. THE EXPERIMENT STATIONS.—At the Coffee Experiment Station drizzling rain amounting to 1·60 inches has fallen, and the nights are getting cold. Sickle weeding and hand weeding of the green dressing plots has now been completed, as also have supplying and planting shade. The plots which were sprayed in May are now beginning to show that they have less leaf disease than the unsprayed portion of the Estate, though this was not apparent when the attack first began. There has been no black rot on the Station this year.

At the Tea Experiment Station a wet week has been experienced, with a total of 5·39 inches and a shower of 2·94 inches in an hour on the 30th. Yield of leaf has increased slightly, 429 lbs. having been plucked from 5·14 acres. Plots Nos. 11 and 17 have been pruned. A covered pit has been constructed to collect rubbish and cattle manure from the bandy stand on the road near the Station, and to make this into compost. Of green dressing seeds sown, Daincha (*Sesbania aculeata*) and *Crotalaria Striata* have germinated. It is difficult to establish a green dressing crop in this district by broadcasting seed, and an effort is being made at the Station to find the best time to sow. Some seed of various green dressings is sown each month, to gain information on this important point.

At the Rubber Experiment Station, Mooply, 8·51 inches of rain were recorded, of which 6·80 inches fell on one day, the morning of 31st. The close of the week was bright, with high wind. Patch canker is still prevalent, and 26 cases have been treated during the week. Tapping was done daily, and 77½ lbs. of wet sheet and 15 lbs. wet scrap were obtained from 1,202 trees. Plot 16 was brought into tapping again on 1st September, after being rested through the monsoon months of July and August, the object of this being to ascertain whether it is worth while to tap during this period of heavy rain, and whether resting the trees during these months will not result in heavier yield later in the year. Selected seed from Tenmalai Station has been sent to Mooply, and will be planted in a special nursery.

At the Rubber Experiment Station, Tenmalai, 3·18 inches of rain were recorded, of which 2·27 inches fell on 29th. Tapping was begun on Plots 1 to 14 on 1st September, in order to get them standardised for future manurial experiments. One cut on one-third section beginning at a height of 18 inches from the ground is the system adopted, and this will be adhered to without change. Only one inch of the central channel is opened at a time, and the spout placed at the base of this, the object being to avoid, as far as possible, all cuts which may isolate corners of bark and produce Brown Bast.

(Signed) RUDOLPH D. ANSTEAD,

Deputy Director of Agriculture, Planting Districts.

9–ix–21.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

Seedling Disease of Tea.

Some specimens of Tea have been received showing the "Seedling Disease." Dr. Butler, in his book "*Fungi and Disease in Plants*," gives the following description of this disease :—

"At the base of the stem, or at a little above the soil level, the stem tissues become diseased. The bark is killed in a ring round the stem, one-half to one and a half inches broad, and extending on to the surface of the wood. In some cases, the injury seems to go further, and the plants die rapidly, probably from the wood becoming involved. In some cases, the wood is not at first injured, and, as a result, while the stem above the wound continues to increase in thickness, that below, cut off from the descending food supply, remains unaltered, or even diminishes at the level of the injury from collapse of the outer layers. Death does not immediately ensue, as the water and food supply to the upper parts is not interfered with, and the roots are able to maintain their activity for a time, even though starved. At the upper limit of the injured part, a prominent ring of callus appears, a condition which is the normal result of a ringing wound down to the cambium in such a stem. This callus may, sometimes, be prolonged over a part of the wound, causing the site of the latter to appear much thickened. From it, roots have been observed to arise. In those cases where the attack rapidly involves the wood, new branches may spring from below the seat of injury, and either replace the killed primary shoot, or are themselves killed off in turn."

A very similar state of affairs has been noticed in Coffee seedlings.

The original cause of this disease is assigned to alterations of high humidity and great heat. The conditions which produce it have been found to be a season in which there is first a long drought with considerable heat towards the end of it, then continued heavy rain for about a fortnight, and then several extremely hot days.

During these latter the disease becomes evident.

No fungus has been detected in any Indian specimens, and those recently received also showed no fungus present. The roots are normal, and the whole trouble is put down to climatic changes. In Java and Ceylon, where this disease also occurs, a fungus has been found in the diseased portion, and thought to be the cause of it, but the opinion in Java is that abrupt climatic changes prepare the way for the attack.

Remedial measures recommended are to shade the collar of the young plants when put out in the field. In some districts of South India this is always done, bracken fern being used for the purpose on strips of bark for the logs left after the burn. These latter are set up like a fence round the plants. Where this is done, I am told that it proves most efficacious, and that if it is omitted a large number of the plants die.

Another precaution recommended in Assam is to remove the soil which adheres to the base of the stem when weeding.

This disease should be distinguished from the damage done by biting insects. The collar in this case is gnawed, and wounds made. The chief offender is the Cut Worm, the caterpillars of which feed at night, and in the day time hide up in clods beneath the soil surface, from which hiding place they can be hunted out by children and destroyed.

Other insects which may cause damage to young plants by gnawing the bark are Crickets and Beetles.

(Signed) RUDOLPH D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore,
14th September, 1921.

SECRETARY'S REPORT No. 29.

1. PERIAKOLAM-KURUVANUTH ROAD.—The Secretary to Government, Public Works Department, writes to say that the final orders on the subject of financing the repairs to this road will be issued in the Local Self-Government Department, and this Association's resolution has been handed over to that Department.

2. MANURES.—G. O. No. Mis. 1685, dated the 12th September, 1921, of the Development Department, Government of Madras, reads as follows:—"The resolution of the United Planters' Association of Southern India, received with the Secretary's letter No. 2809, dated 3rd September, 1921, will be forwarded to the Government of India (by order of the Government, Ministry of Development)."

3. LONDON DOCK CHARGES.—The Secretary, South Indian Association in London, has forwarded the following copy of a notice issued by the Port of London Authority:—

NOTICE IS HEREBY GIVEN that, on and after the 1st August, 1921, a REDUCTION OF 25 will be made in the Percentage Addition of the 7th February, 1921, to Tariff Dock and Warehouse Dues, Rates and Charges.

The Percentage additions will then be as follows:—

DOCK AND WAREHOUSE RATES, CHARGES AND RENT ON GOODS.—100 per cent, instead of 125 per cent as at present. Similar reductions will be made in the Rates on Refrigerated Produce where the percentage increase has been merged in the rates.

DOCK DUES AND OTHER CHARGES (EXCEPT RENT) ON VESSELS AND LIGHTERS.—100 per cent. instead of 125 per cent as at present.

DOCK DUES ON VESSELS IN CLASS I.—97½ per cent instead of 122½ per cent as at present.

RENT ON VESSELS AND LIGHTERS.—85 per cent instead of 110 per cent as at present.

The Reduction will not apply to the following:—

i. Charges for any services performed or rent incurred before the 1st August, 1921.
ii. Goods *ex* ships which had broken bulk before the 1st August, 1921, for storage at rates including a period of rent or at commuted rent charges.
iii. Vessels which reported before the 1st August, 1921.

(Signed) C. H. BROCK,
Acting Secretary.

NILGIRI-WYNAAD PLANTERS' ASSOCIATION

PROCEEDINGS OF A GENERAL MEETING, HELD AT GUDALUR, ON MONDAY, 15TH AUGUST, 1921, AT 11-30 A. M.

PRESENT:—Messrs. J. Aird (Chairman), R. Fowke (Vice-Chairman), G. A. Rutter, J. H. Wapshare, G. W. Fulcher, J. S. Nicolls, B. J. Blackett, J. W. H. Bradshaw, J. E. Bisset, and F. W. F. Fletcher, (Honorary Secretary).

By proxy: Messrs. J. B. Adkins, L. Garrett, and W. B. de Courcy.

VISITOR:—Mr. S. P. Eaton.

AGENDA OF U. P. A. S. I. ANNUAL MEETING.—This was taken item by item, and the necessary instructions were given to the delegates. With regard to the Labour Department the Chairman said:—

Gentlemen,—From what I have gathered of your opinions, I will begin by assuming that discontent with the Labour Department of the U. P. A. S. I, is fairly general in our Association, and if this assumption is correct, then, the sooner grievances are recognised and a remedy found the better for everyone concerned. We seem now to have reached a point where most of us are agreed that the Department should be either mended or ended, and with your permission I propose, before going to Bangalore as one of your Delegates, to place my views before you.

It was very unfortunate that the Department, early in life, adopted as its motto "we don't recruit" and is at all times prepared to shelter itself behind this, and I think the time is long past when it should have discarded the motto altogether, or added to it, say, the words "but we can place your Maistries in a position to do so." At the present time, the main idea in the mind of every Agent seems to be that his principal work consists in arresting defaulters or recovering outstanding advances from them. This work is no doubt very necessary, but I think it should be secondary to that of obtaining full particulars in regard to every recruitable cooly in his Division. These should consist of the name, age, caste and village of the cooly, whether he is married or single, if he has children or not, and, if so, whether these would accompany him to the estate; the amount he wants as an advance, whether he declared to remain throughout the season, or only for a short period on the estate, and whether he has any preference in regard to the District he would like to work in. A system of the sort might lead to an increase in the actual number of estate going coolies, whereas at present when any of us do get a new Maistry who can supply labour, it is more often than not as a result of applying the principle of robbing Peter to pay Paul—they merely come from some other estate. Other particulars might be thought necessary, but the above could be easily tabulated, and sent in to the Head Office of the Department, and would be available to any subscriber applying for them. Our Maistries could then get into direct and immediate touch, by going from the estate to the village of these coolies, and would not, as they now do, waste their time and money visiting villages on the off chance of finding recruitable people there.

A point, too, that more information is required on is that of what might be called "temporary labour." By this I mean coolies who would come in to work for 2 or 3 months, and I need not point out to those of you who are interested in coffee, that if such labour was available during, say, the months of December-March, or for any part of that period, it would be invaluable, and during the months of April-June, when flush is heavy in our District and gangs are at their lowest, it would be welcomed by the tea planter. It may well be that such Labour does not exist, but on the other hand it might be available, practically at our doors, and we not aware of it, as so far as my knowledge goes no systematic effort has ever been made to find it.

Then as to the control of the Department I have no hesitation in saying that there is too much left entirely in the hands of the Director, and far too little known to the subscriber, and in this connexion I think the General and Executive Committees have not functioned as it was hoped they would when the reorganization of the U. P. A. S. I. Labour Department was carried through. They have failed to keep the general body of the subscribers in touch with the work done. One would like to know more of the system on which operations are carried on, and to feel more confident that every servant of the Department is pulling his fair share of the load. Organization is, I feel sure, wanting, and, as an instance of this I may tell you that some time ago I applied to one of the Superintendents for a list of unserved warrants, sent to him from the Estate I am in charge of, and was told that this information was not available. To my mind this shows a lack of elementary organization, and I can only hope it is not a sample of how things are done throughout the Department.

I anticipate that we will be told there is no money available to extend the Labour Department's activities, and in this connexion I, personally, deplore the fact that the original subscription was ever reduced. What was wanted then was an increase, and a *quid pro quo* in the way of a more assured labour supply. The present subscription, as an item in our acreage expenditure, is insignificant, but the sum in the aggregate, which each of us have to pay, is considerable, but for the more assured labour force, to which I have referred, I am certain you will agree with me it would pay us to have it multiplied several times over. What we require, and what we have suffered in the past from, is the absence of ideas, especially as emanating from within the Department itself. We go on year after year treading the same old track, and apparently no effort is made to improve matters, or give us what we require, or to recognise that dissatisfaction exists, and to find a remedy.

I have heard members of our Association say: "I won't subscribe for another term," but before coming to any decision of the sort, I would ask them to remember that there is ample time to reorganize the Department before the present term expires, and that there is vast scope for a well run Department to operate in our interests.

Finally, I ask you for the freest possible criticism of my views, and trust that some more satisfactory scheme than the present may be devised. The ideal conditions will arrive when there are no warrants to serve or bad debts to collect, but this is too much to hope for, but I think it might well be that, with a Labour Department more in touch with our labourers, warrants and debt collecting might be considerably reduced, and if my ideas on the matter are elaborated and worked on, what I propose may go at least a certain distance to bring this about.

REDUCTION OF RATES OF PAY.—The Honorary Secretary read the replies received from the Wynaad, Nilgiris, West Coast, and Anamallai Associations to his letter on this subject. It was resolved to let the question lie over, pending the result of the discussion with the delegates from the above Associations to be held at Bangalore during the UPASI Annual Meeting.

DISTRICT BOARD MEMBER.—The Honorary Secretary said he had been promised a reply to his letter to the President of the District Board, dated 15th July, "in due course," but as it had not yet been received, he was not in a position to afford any information. He was instructed to ask the President what proportion, if any, of the extra sum brought in by the recent enhancement of tolls had been allotted to the maintenance of roads in the Nilgiri-Wynaad.

U. P. A. S. I. SUBSCRIPTIONS.—(a) COLLECTION.—The Honorary Secretary said he was quite unable to fathom the reason why the direct collection of UPASI subscriptions had been vetoed, as it was obviously the legitimate duty of the UPASI staff, and he felt sure that Honorary Secretaries of other District Associations would be as pleased as himself to be rid of this irksome work. He read a letter from the Acting Secretary of the UPASI in which that gentleman wrote: —"Both Mr. Waddington and I are in complete accord with your opinion that subscriptions should be collected by this office, but other Associations have strongly turned it down. . . . and I, for one, cannot understand their attitude." Perhaps by constant hammering the objection—whatever it was—might eventually be overcome, and he hoped the matter would be brought forward again at the coming Annual Meeting. The delegates were instructed to do this if opportunity offered.

(b) LIABILITY.—This was discussed in Committee, and the decision of the General Committee of the UPASI at their Meeting to be held on 22nd instant was awaited.

SURVEY AND SETTLEMENT.—Mr. Nicolls brought to the notice of the Meeting that Estate owners and Managers were in the dark as to the lines on which the survey now in progress was being conducted, and said that the work of the surveyors should be open to criticism by those interested. Mr. Bisset said that abandoned cultivation, especially coffee, which had not been worked for many years and was being allowed to go out, would apparently be assessed at the same rate as cultivation which was thoroughly well worked, and he considered that this was manifestly inequitable. The Honorary Secretary was instructed to address the Special Settlement Officer on both points.

CORRESPONDENCE.—All correspondence of importance since the last Meeting was read and dealt with.

(Signed) J. AIRD,
Chairman.

(,,) F. W. F. FLETCHER,
Honorary Secretary.

INDIAN TEA ASSOCIATION.

ABSTRACT OF PROCEEDINGS OF A MEETING OF THE GENERAL COMMITTEE, HELD AT CALCUTTA, ON 30TH AUGUST.

CORRESPONDENCE WITH THE INDIAN TEA ASSOCIATION (LONDON).—Letters, dated 28th July and 4th and 11th August from the Indian Tea Association (London) which had been circulated to the Committee were now brought forward for consideration and disposal. The principal subjects dealt with in these letters were as follows:—

(*a*) Annual General Meeting of the London Association.—In the letter of 28th July it was mentioned that the Annual General Meeting of the London Association had taken place on Friday the 22nd idem.

(*b*) Chairman and Vice-Chairman, and General Committee of the London Association.—It was stated in the same letter that Mr. G. Kingsley had been elected Chairman and Mr. W. A. Bain, Vice-Chairman of the Association for the ensuing year: and that the General Committee had been appointed as follows:—

Mr. S. G. Anderson.
,, A. Bryans.
,, W. A. Duncan.
Col. A. J. MacLaughlin, C.I.E., M.D.
Major Norman McLeod.
Mr. F. A. Roberts.
,, St. George A. Showers.
,, James Steel.
,, J. N. Stuart.
Major Yalden-Thomson.
Mr. James Warren.

(*c*) *The Brahmaputra and Surma Valley Labour Rules Agreement.*—Particulars of further signatories to the labour rules agreement were given in the letter of 28th July.

(*d*) *The late Mr. William Jackson's Trust.*—In the proceedings of 19th July last it was mentioned that the London Association had forwarded for information copies of the memorial submitted to Counsel by the agents of the trustees in this trust, and of his opinion. These papers related to the interpretation of the terms of the trust deed, and to the arrangement which should be made with a view to having effect given to the wishes of the late Mr. Jackson regarding the administration of the trust fund; and it was stated, when the matter was last mentioned in the proceedings, that the question was being discussed by a special Sub-Committee of the London Association.

With the letter of 4th August, the London Association now forwarded a copy of the Sub-Committee's report, from which it was noted that the adoption was recommended of a suggestion put forward by the agents of the trustees, namely that a Tea Planters' Benevolent Institution should be formed in Calcutta for the purpose of giving grants in aid to persons requiring assistance The London Association had approved the Sub-Committee's recommendation, and invited the General Committee's views regarding it.

The Committee now discussed the papers They were of opinion that the proposal to form a Tea Planters' Benevolent Institution in Calcutta offered a suitable method of dealing with the question, and they decided in the first place to submit the papers to the Association's solicitors with a view to the latter suggesting the procedure which would be necessary for the purpose of forming an institution on the lines suggested. The members of the Advisory Committee in connection with the trust—which consists of the Chairman and Vice-Chairman of the Indian Tea Association, and the Chairmen of the Branches and local Associations—were to be informed of the position.

LABOUR.—Propaganda Sub-Committee.—The Sub-Committee had received for confirmation, and had confirmed the proceedings of the meetings of the Propaganda Sub-Committee, held on 12th and 19th August. They noted a request from the Sub-Committee that members of the Association should be informed, by a note in the proceedings, that if members desiring information in connection with propaganda work would communicate with the Sub-Committee the latter would be glad to furnish every possible assistance.

SURMA VALLEY BRANCH: RATE OF SUBSCRIPTION.—In a letter, dated 19th August, the Secretary, Surma Valley Branch, explained that the Branch Committee had had under consideration the financial position of the Branch; and in view of the decreasing acreage on which subscriptions were paid, and a probable increase in expenditure, they were of opinion that the subscription per acre should be raised. The present rate of subscription was six pies per acre in the case of concerns which were also members of the Indian Tea Association, and one anna in the case of others, and it had been decided to recommend that these rates should be increased to one anna and two annas, respectively. In their letter the Branch Committee, besides mentioning the decrease in acreage, referred to the increase in postal rates, increase in correspondence, and "an increased expenditure necessary if the political requirements of the Branch are to be properly represented to the Government of Assam."

The Committee considered the question. They noted that the suggestion was to increase the subscription rates 100%, and they felt that, before recommending proprietors to agree and in view of the present position of the industry, especially in the Surma Valley, more particulars of the need of such a large increase would be necessary, particularly with regard to the reference to increased expenditure for the purpose of representing the political views of the Branch to Government. The Committee quite recognised that recent labour troubles must have added materially to the expenditure of the Branch, and they were prepared to support an increase of, say, 50% in the rate of subscription; but they were inclined to think that this was as much as proprietors would be able to accept. The Branch were to be informed accordingly.

REPORT ON TEA CULTURE IN ASSAM.—The Assam Gazette of 10th August, 1921 contained the Report on Tea Culture in Assam for the year 1920. Among other points touched on in this report was the question of the accuracy of the statistics. The Committee had last year suggested that these figures should be collected from agency houses instead of from garden managers directly. This suggestion had not been approved by the Government of Assam who thought the proposed change would not mean any gain in accuracy. The Committee now considered whether in regard to the procedure obtaining for the collection of these statistics they might again suggest that garden managers' returns should be collected by agency houses and despatched by them to the district officers. But after some discussion it was decided not to make the suggestion but to accept the arrangement in force at present.

INTERNATIONAL LABOUR OFFICE.—A letter dated 17th August had been received from the Director of Public Health, Bengal, stating that to facilitate an enquiry into the problems of industrial production in various countries undertaken by the International Labour Office at Geneva, the Government of India had suggested the desirability of commencing the recording of the health statistics of industrial workers in factories and other places where such workers are employed in large numbers. The Local Government had been consulted, and the Director of Public Health now referred to the Association an enquiry addressed to him by the Government of Bengal as to what means should be adopted for the collection of these health statistics in respect of the different factories in the Presidency of Bengal.

The Committee decided to reply that the tea industry did not, as a matter of fact, employ labour in large numbers in tea factories, and that the figures required might most conveniently be obtained through the Local Government Officers.

TEA SHARES.

RISE IN VALUES.

Recently we drew attention to the apparent anomaly that, while the annual reports of tea plantation undertakings which have lately appeared have as a rule been among the worst ever submitted, share values have been distinctly improving. Some of the rises which have taken place are indicated in the following table :—

	Prices. Mid. May.	 Mid. Aug.
INDIAN.		
Amalgamated	$6\frac{3}{8}$	7
Assam	46	50
Consolidated Tea and Lands ...	$11\frac{1}{2}$	14
Dooars	25/	33/9
Jokai	$12\frac{1}{8}$	14
Single	22/6	30/
CEYLON.		
Ceylon Tea Plantations	46/3	56/6
Dimbula	27/6	33/
Eastern Produce	23/9	31/6

The reason for this hardening tendency in the face of unsatisfactory reports is the more encouraging feeling with regard to the future. It would not be wise to anticipate anything in the nature of a boom, as there is still undoubtedly a good deal of leeway to be made up, but expert opinion generally is well expressed in the words of the Chairman of the Indian Tea Association at the annual meeting recently held. "My conclusion, on the whole," he said, "is that tea has turned the corner, and that, though progress may be slow, the industry is again on the way to profit-earning."

Tea shares are largely held by those intimately connected with the trade, and the share market is therefore mainly guided by the outlook as viewed by such persons. Hence, those investors who are looking ahead may find this class of securities attractive for lock-up purposes. As and when a return to even moderate prosperity takes place, considerable further appreciation in share quotations is pretty certain to occur.

CROPS AND STOCKS.

Last year was an unfortunate one for the tea industry, after opening with fair promise. A large accumulation of stocks in the East when freights were restricted took place, while the Government action in purchasing the 1918 crop at a uniform price greatly stimulated the production of inferior qualities. On the removal of control and restrictions, supplies due to these causes were shipped to London in immense quantities, with the result that a large proportion of them were practically unsaleable, and even storage accommodation was inadequate. Tea prices inevitably declined, and the position about a year ago was a serious one.

It has also to be remembered that while consumption in the United Kingdom and in British Dominions has been large, the practical closing of Russia to imports and the very limited demand from the Continent aggravated the difficulty greatly. A policy of crop restriction had therefore to be adopted in India and Ceylon, which has resulted in supplies being considerably reduced, while greater attention to finer plucking has caused an improvement in quality. As consumption has shown some increase this year, there is good reason for thinking, though no data are at present available, that the heavy stocks of a year ago have considerably fallen.

BENEFICIAL CO-ORDINATION.

Last year the Committee of the Indian Tea Association recommended that the shipping of the 1920 crop should begin in July and be restricted to about 8 per cent. per month of the total crop, afterwards reduced to 5 per cent., and restored to 8 per cent. in January, while consumption in the United Kingdom shipments were limited to 6 per cent. India and Ceylon also co-operated, through a standing joint committee, in restricting the weekly offerings on this side. These arrangements in the main being carried out, the weekly sales for the year ending June 30th last have been on a cautious scale. There has, it is true, been some instances of companies refusing to adopt the plan, but, fortunately, these have not been serious.

OTHER HOPEFUL FACTORS.

Some progress has been made in the way of reducing production costs, partly owing to the fall in rice. Exchange is now more favourable, and the fall in freights will be advantageous. Attention is also being paid to the improvement of yield and quality by the employment of more scientific methods. The Indian Tea Association has secured the services of an eminent bacteriologist, who will mainly devote his time to the study of the process of manufacture and to the chemical changes in the leaf during such process, with special regard to their influence on quality.

Admittedly there is a great field for applied science in this direction. In the opinion of some well qualified to judge, too little attention has been paid of late years to the question of quality, partly, no doubt, owing to the purchase of the 1918 crop at a uniform average price. It can hardly be doubted, however, that this whole question needs careful and skilled investigation, which should ultimately be very beneficial to the industry.

Until Russia is again a buyer on a large scale, a policy of limitation of production to some extent will probably continue to be necessary, but there are signs of more Continental buying, especially in Germany. As trade improves generally, however, the world's demand for tea must expand, and this will, of course, benefit the plantation companies.—"Financier."

POSITION AND PROSPECTS OF THE PLANTATION RUBBER INDUSTRY.

HENRY P. STEVENS.

As everyone interested in the commodity is aware, there is at the present time an over-production, or, as some prefer to put it, an under-consumption of raw rubber. Following a post-war boom, a fall in price of most commodities was not unnatural having regard to the inflated prices reached during and subsequent to the war, but rubber was in a different category, for it was perhaps the only raw material which fell in price during the war, and at the moment of writing is selling at well under the average cost of production.

A decade ago the plantations produced about 14,000 tons out of a total output of 85,000. Last year the plantations produced 315,000 tons of a total output of 360,000, and this in spite of some curtailment of output towards the end of the year. The potential output of the plantation industry for next year is put at 400,000 tons. Two deductions of outstanding importance may be drawn from these figures. First, the proportion of plantation rubber has arisen from under 20 per cent. to nearly 80 per cent. of the world's output, and from a relatively insignificant position has now become the dominant factor in the world's supply; and secondly, owing to the large increase in output of plantation rubber, and in spite of a decrease in the production of other sorts, the total output of raw rubber has increased over fourfold in ten years. Such an increase in the output of a raw material in so short a time might well result in over-production, which, indeed, would have been generally anticipated had it not been for the simultaneous increase in the demand due to the growth of the motor industry. In 1917 the output of plantation rubber was already triple that of 1911, and the prices varied from 2s. 2d. to 3s. 4d. per lb., thus leaving a good margin of profit over a producing cost of 1s. or 1s. 3d. The present accumulation of stocks (about 60,000 tons in London alone and possibly 300,000 in all) and consequent low market-price may be largely attributed to the general trade depression, particularly in the motor industries. The motor trade has become the paramount consumer of raw rubber, and consequently the future price and position of plantation rubber will be largely controlled by the prosperity of this industry.

As is well known, tyres are of two types, the solid band-tyre with about 40 or 25 per cent. of raw rubber, and the pneumatic tyre with its inner-tube and outer-cover. The inner-tube contains a relatively large proportion of raw rubber, and the same applies to the outer-cover, with the possible exception of the tread. The carcase is built up mainly of layers of canvas, which in some respects is of more importance than the rubber. The tendency is to replace the solid band-tyre by the pneumatic, and giant pneumatic tyres are being experimented with. The writer recently inspected a 3-ton lorry with twin pneumatic tyres, which he was told had been giving very satisfactory service. How far the replacement of the solid by the pneumatic tyre will affect the consumption of raw rubber cannot at present be decided; so much depends on the life of the tyre. Another recent improvement is the introduction of the new type of cord-tyre. The material is woven with stout cords in one direction, and with only thin loose threads to hold them in place in the other direction. This allows the cords to move easily transversely while remaining taut lengthways, and prevents the chafing between the layers of canvas of which the ordinary carcase is built. It is claimed that these new tyres will give a mileage of anything from ten to twenty thousand per tyre, as against, say, six thousand for the ordinary canvas-fabric type. If these claims are only partly realised, the effect on the raw-rubber consumption must be appreciable, particularly if the new type of cord-tyre should be found suitable for replacing the ordinary "solid" for heavy vehicles.

The phenomenal development of the rubber-manufacturing industry during the last twenty years encourages the hope that it may expand sufficiently to absorb any future increase in output of which the plantations may be capable. This may be accompanied, not only by the extension of the present uses of rubber, but also by the discovery of new uses. The Rubber Growers' Association has offered prizes to encourage investors to find new outlets. The hindrance to expansion in many directions is the cost of manufacturing, particularly the large amount of expensive machinery required for vulcanising. Relatively few goods can be open-cured or merely wrapped in cloth. As a rule expensive moulds or steam-presses are required, which, with the labour, brings up the cost of production to a figure out of all proportion to the cost of the raw material. We have become accustomed to regard vulcanising as unavoidable if the goods are to possess the necessary physical and mechanical properties, and no alternative seemed possible. On the other hand, a rubber planter has been bold enough to query the necessity of vulcanisation, at any rate for some purposes, and has found that a sheet of well-rolled raw crepe rubber makes an excellent sole for a tennis shoe. It is stated that a piece so worn for two or three years showed no appreciable wear or deterioration. There is no doubt that raw rubber is a more permanent and less oxidisable material than vulcanised rubber, so that if rubber can be used unvulcanised it should last longer. For the same reason, there is no truth in a report which gained currency a few weeks ago that raw rubber deteriorates on keeping, and consequently that much of the present stocks will be useless when they are taken from storage. Raw rubber ages remarkably well. The draw-back to its use without vulcanising lies in its susceptibility to moderate changes of temperature. The strength and other physical properties of raw rubber are improved by vulcanisation, if only temporarily, but plantation rubber is strong enough in the vulcanised condition for a great many purposes. It must not be forgotten that the value of vulcanisation came to be realised at a time when most raw rubbers came to market as dirty, sticky and malodorous masses, which even after washing gave soft, weak and often sticky sheets. The effect of vulcanising these low grades was remarkable: the softness and stickiness disappeared, and marketable goods resulted. Low-grade inferior rubbers have now been driven from the market by the hard, clean, and dry plantation product. The effect of vulcanisation on this is much less apparent; indeed, the very excellence of the rubber is a drawback, for the manufacturers complain of its hardness and "nerve," and the heavy expenditure of power necessary to reduce it to the required plastic condition for incorporating other ingredients and subsequent sheeting and moulding to the shape of the article required. New methods of vulcanising may also lead to new products. Until recently, all ingredients had to be carefully dried, to prevent porosity. Moisture, however, does not affect the Peachey process of vulcanising; consequently a variety of ingredients containing natural moisture, in particular cellulose in its natural forms, can be incorporated. Products can thus be made which are barely possible and certainly not practicable by the ordinary methods. The same applies to the new method of Bruni, in which thiocarbanilides are formed in a nascent state in the presence of zinc oxide, rubber, and sulphur by compounding aniline or its homologues with those ingredients and exposing to the vapour of carbon bisulphide (cf. J., 1921, 237 R.)

The present low price of raw rubber has naturally led to a restriction in output. Last year a 25 per cent. reduction was agreed upon both by British and Dutch producers, on the initiative of the Rubber Growers' Association. This has not produced much effect, and the proposal is now for a 50 per cent. reduction. The latter suggestion has been adopted by some estates, and two or three have ceased tapping altogether. An estate, obviously, cannot be shut down entirely and left to itself. The labour force must be kept together as far as possible and work found for the coolies, for, if they should be forced to return to their native Indian shores in a disgruntled state, it may prove difficult to induce them to come forward later, when conditions improve again. Moreover, there is a certain amount of necessary work on a plantation, such as weeding, keeping the drains clear, and plant sanitation. It is useless for an estate to continue tapping if the produce is to be sold at a loss for any length of time, so that the tendency everywhere is to curtail tapping to a degree consistent with keeping the cooly force together as far as practicable. Cessation of tapping also benefits the trees. Present-day methods of tapping are mild compared with those of the past. It is now recognised that drastic tapping injures the tree, and that years may be required for its recovery. The tendency to-day is therefore all in favour of bark conservation. It is not merely the loss of the bark cortex and latex constituents, but the irritation set up appears to be responsible for the most prevalent of diseases known as brown bast. The frequent draining of the latex tubes causes the formation of a wound gum which blocks the vessels, and the trees run dry. This give rise to various secondary changes, of which the most noticeable is the development of warty growths in the cortex that render the bark surface useless, however vigorous the growth of the trees. In some fields three-fourths of the trees is affected, and, if the "physiological" explanation be correct, there can be no better course than a rest cure if the majority of the trees is to be retained. On the other hand, yields from plantations in the future may be enormously increased by suitable seed selection, as the yield of latex varies considerably with individual trees. It has been stated that three-quarters of the latex of a field may be obtained from a quarter of the trees. Consequently, if a selection could be made of the good yielders by choice of seed, by grafting, or other means, the output of rubber per acre should be increased very considerably. At present, however, planters are not anxiously considering these matters. They would rather welcome some convenient disease, which, while reducing the planted area, could be brought to a standstill when the market had sufficiently recovered. As practical business men they are promoting a rubber-control scheme, to be affiliated with a similar scheme organised by the Dutch planting interests, with a view to the efficient control of production and the attainment of a stable price for the commodity.—(" Journal of the Society of Chemical Industry.")

40-14.

LETTERS TO THE EDITOR.

(The Planters' Chronicle is not responsible for the opinions of its Correspondents).

Shipping.

Dear Sir,—We have read with some interest the correspondence in the above connection which has recently appeared in the "Planters' Chronicle," and whilst on the subject would like to bring to the notice of those concerned, per the medium of your valuable periodical, another aspect of shipping, which, though possibly not so important on one as "shortage of tonnage," is at the same time a matter of moment and more often than not a source of considerable worry and trouble to consignees of imported cargo on the Coast. We refer to "short-landed" or "over-carried" materials *ex* both Home and Coastal shipments. During the last few months it has been our lot (we hardly know whether to term it fortunate or unfortunate), to handle considerable shipments from both the United Kingdom and Bombay arriving both on the West, and in one or two instances the East Coast, and in no single instance can we recollect having landed any shipment without some percentage of the consignment being classified as either "short-landed" or "over-carried." Possibly there are other sufferers in a like case to ourselves, to whom these lines may appeal with double force, and these will appreciate with us "how long and tedious is the way" for such to get their claims for "short landings" or the other case recognized by Steamer Agents on the Coast. Correspondence in these cases appears to be endless, the Steamer Agents shuffle and wriggle (almost invariably trying to shelter themselves under rather obscure clauses of their respective Shipping Line's Bill of Lading), and the upshot of it all is that practically always from their "Olympian heights" the Steamship Agents eventually repudiate all liability under Clause so and so of the Bill of Lading in question. The unfortunate consignee departs feeling that there is an infinite amount of Law but next to no justice embodied in a Steamer's Bill of Lading, (give him whatever Line you may), and realizing to the full that there is a great deal of wisdom in the definition of sundry Commercial Works of Reference that "In a modern Bill of Lading the Steamship Line is exempted from almost every liability which a fertile imagination can devise."

Perhaps those who so ably replied to Messrs Cook and Morrell's resolution at the United Planters' Association of Southern India Meeting, in a letter appearing in your issue of September 3rd, will like to say "a few words" in regard to the above.

Yours faithfully,
"SORELY TRIED."

Election of Executive Committee.

Dear Sir,—With reference to the note you have made in the "P. C." of 3rd instant, in reply to my letter on the election of the Executive Committee.

It appears to me that the counting of votes has been changed from the system adopted at the two previous annual meetings. At those elections it was understood that No. 1 was for the "executive member," and No. 2 for the "member-in-waiting." On what authority has this alteration in the counting been done?

Yours truly,
DELEGATE.

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The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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THE LABOUR DEPARTMENT.

In another part of this issue details will be found of the proposals put forward at the Annual Meeting of the U. P. A. S. I. last month, by Mr. J. R. Vincent, for increasing the income of the Labour Department without actually increasing subscriptions. The recommendations of the Special Committee formed to consider the proposals are also published, so that our readers may better judge the whole question. The proposals and the Committee's recommendations are being sent out in the form of a Circular to Honorary Secretaries of District Associations, so that the widest publicity may be given to them, and every planter in South India will have an opportunity of expressing his views.

Before these proposals meet with utter condemnation, modified acceptance, or even complete accord at the hands of the planting community, we would like to point out that a sporting chance should be given them by reading them in conjunction with the debate on the Labour Department which took place at the meeting. There is no doubt that the need for more funds with which to increase the efficiency of the Department was almost universally recognised; at the same time, the delegates appeared equally to have come with practically unanimous instructions from the various associations to oppose the Anamallai resolution, which provided for a direct increase in the cess. The proposals, therefore, would appear to be a rational form of compromise which is deserving of the most careful consideration, and, as we have said on a previous occasion, if an agreement can be arrived at on the point by the general body of planters, it will materially help the Commission of Enquiry in their deliberations if such agreement is before them when they set out on their mission.

A few remarks on the proposals themselves may not be out of place. The figures put forward by Mr. Vincent are based, it will be seen, on the actual number of cases handled and the amount of money recovered by the Labour Department during the year ended 31st March, 1921. During that year, over 15,000 cases were referred to the Department, including warrants. If Mr. Vincent's proposal to charge an investigation fee of Rs. 3 for 10,000 of these cases is accepted, apart from the question as to whether such investigation is justly part of the Department's initial duties, it is fairly certain that a far less number of cases would be referred to the Department, and his estimate therefore of an income of Rs 30,000 is unduly high. On the other hand, if less cases are referred to the Department, a smaller staff, and generally less expensive organisation would be necessary. Recoveries are impossible to judge, presumably a larger number of cases referred to the Department leads to greater recoveries, and some years are more successful than others. Last year's figures are high, and a more conservative estimate would be, say, half a lakh instead of Rs. 80,000, particularly as it is possible planters will make greater efforts themselves to recover advances than hitherto, and thus sometimes save the 10% or 15% whichever is decided upon. Civil suits at 1% or Rs. 25 per case raises a peculiar point. It seems hardly fair at first blush to charge Rs. 25 for a small suit of, say, Rs. 500 or less, whereas the same amount is charged for one involving perhaps Rs. 5,000. That, we suggest, was in Mr. Vincent's mind when he proposed 1%, since in the above instances Rs. 5 for one and Rs. 50 for the other seems a fairer charge. But if the suits end in recovery of the debt, a further charge of Rs. 75 (15%) could be levied in the one instance, and Rs. 750 in the other. Possibly some form of sliding scale would better suit this particular branch of the department's work.

On the question of warrants, Mr. Vincent and the Committee are more or less in agreement, but apart from the amount of the charge to be levied there is the anomaly that warrants "served" give the Labour Department, in 99% of the cases, less trouble than the "unserved" ones which come back repeatedly for various reasons, are renewed over and over again in many instances, and generally hang on to a very bitter end. The great "unserved" have undoubtedly taken up the time and energy of the Labour Department's Officials to an extent far beyond that of the satisfactorily disposed of cases, so that it would seem more just to charge for warrants "taken out," whether "served" or not. That, admittedly, would be the view of a Superintendent of the Labour Department, and we quite follow the opposite line of argument, which is the planter's, and which might well be preparedness to pay for "success."

If we look carefully at the recommendations of the Committee we find that they are based on that point. That is possibly why the Committee turns down the investigation fee and the Agent's travelling expenses. They are problematical, and might easily be money wasted, whereas they (the Committee) are presumably prepared to recommend payment for "success," witness the increased percentage on recoveries, and the emphasis on the payment for warrants "served." Civil suits are the exception, and rightly so, since, successful or otherwise, they give enormous trouble to the Department, which runs them at far less cost than the Estate Manager could himself do. That point was well brought out by Mr. Vincent in his speech, and will, we hope, be generally admitted on all sides.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT NO. 16.

The Deputy Director of Agriculture, Planting Districts, was at headquarters throughout the week ending 17th September.

2. THE EXPERIMENT STATIONS.—At the Coffee Experiment Station, 1·54 inches of rain were recorded, the end of the week being fine and bright. The 4th was "Gowrie" and the 5th "Ganesha" feasts. Rain fell on the 4th, which we understand is as it should be. Three acres have been hand-weeded, and the drains and paths cleaned. Re-supplying has been done over the whole Station. Some trouble has been experienced with Mealy Bug (*Dactylopius citri*) on the roots of nursery plants. This is a common occurrence in this district. The roots of the supplies have been washed before they are put out in a tobacco wash, made by boiling 1 lb. of tobacco in 1 gallon of water, and adding 4 oz. of soap, and diluting the whole to 12 gallons with water. This mixture is also being used to disinfect the soil in the pits and protect the plants. For an account of this pest, and the remedies recommended, reference should be made to the *Planters' Chronicle*, *Volume V*, *pages* 3 *and* 235.

At the Tea Experiment Station, better weather was experienced, with a total rainfall of 4·43 inches. 798 lbs. of leaf were plucked from 9·62 acres. Plots 2, 3 and 18 were pruned, as many knots and snags as possible being removed.

At the Rubber Experiment Station, Mooply, fine weather was experienced, with a rainfall of only 0·96 inches. Sixteen cases of Patch Canker and two cases of Pink Disease were treated. Tapping was done daily on all the plots, and a yield of 79½ lbs. of wet sheet and 14½ lbs. of wet scrap was obtained from 1,262 trees, or 0·074 lb. per tree, as compared with 0·077 lbs. last week. Plot 16, which has been rested during July and August, is giving the best yield.

At the Rubber Experiment Station, Tenmalai, light rain amounting to 1·52 inches fell during the first part of the week. Tapping was begun on 1st September, one cut on one-third at a height of 18 inches from the ground. A yield of 48¾ lbs. of wet sheet and 6 lbs. wet scrap was obtained from 398 trees, or 0·14 lb. per tree. A solution of 3% Carbolinium is being applied to the tapped surface to protect it from fungi.

(Signed) RUDOLPH D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

17—ix—21.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore,

21st September, 1921.

SECRETARY'S REPORT No. 30.

1. LABOUR DEPARTMENT.—In accordance with Resolution No. 23, passed at the Annual General Meeting, the proposals put forward by Mr. J. R. Vincent, and the modifications of them and recommendations by the Special Committee have been circulated to District Associations. Sufficient copies of this circular have been printed and sent to all Honorary Secretaries, so that all their Members may have full particulars without delay, and the request has been made that answers to the points raised may be furnished to this office as soon as possible, but before the 30th of November at the latest.

2. MALABAR TENANTS' IMPROVEMENT ACT.—A reply has been received from the Secretary to Government, Law (General) Department, which states that the Government will give early consideration to the matter of the introduction into the Nilgiri-Wynaad of the Malabar Compensation for Tenants' Improvement Act.

3. SHIPPING.—Under the heading of "Shipping" in the deliberations of the Prime Ministers and Representatives of the United Kingdom, the Dominions and India, held during June, July and August, the following paragraphs appear:—

"As regards the Report of the Imperial Shipping Committee on Bills of Lading, it was decided to adopt the following resolution:—

> 'The Conference approves the recommendations made in the Report of the Imperial Shipping Committee on the Limitation of Shipowners' Liability by clauses in bills of lading, and recommends the various Governments represented at the Conference to introduce uniform legislation on the lines laid down by the Committee.'

"A resolution was also adopted to the effect that, pending the constitution of a permanent committee on shipping, the existing Imperial Committee should continue its enquiries.

"The representatives of His Majesty's Government and the Governments of New Zealand and India were ready to agree to a wider resolution recommending the constitution under Royal Charter of a permanent Committee to carry out the duties specified in the Report of the Imperial Shipping Committee, dated June 3, *viz*: (a) to perform such duty as may be entrusted to them under laws in regard to inter-Imperial Shipping, applicable to the whole or to important parts of the Empire; (b) to enquire into complaints in regard to ocean freights and conditions in inter-Imperial Trade, or questions of a similar nature referred to them by any of the Governments of the Empire; (c) to exercise conciliation between the interests concerned in inter-Imperial Shipping; (d) to promote co-ordination in regard to harbours and other facilities necessary for inter-Imperial Shipping.

"The representative of Canada, however, did not agree to this wider resolution, and the representatives of the Commonwealth of Australia and the Union of South Africa reserved the matter for further consideration. The position as regards rebates was discussed, and strong representations were made by Dominion Ministers in regard to it, but no resolution was passed, it being understood that the matter is at present under consideration by the Imperial Shipping Committee."

(Signed) C. H. BROCK,
Acting Secretary.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

(INCORPORATED.)

CIRCULAR. Coimbatore,
NO......... 21st September, 1921.

The Labour Department.

Dear Sir,—At the Annual General Meeting of this Association, held at Bangalore last month, the following resolution was passed:—

> "That the suggestions put forward by Mr. Vincent, and the modifications thereof recommended by the Committee be referred to District Associations for discussion, and with a request to report before 30th November."

———

The details of the scheme put forward by Mr. J. R. Vincent, for increasing the income of the Labour Department, without actually increasing subscriptions, are as follows:—

The basis of the scheme is that estates and individuals who use the Labour Department should be charged fixed fees for the actual work carried on for them by the Department. The suggested scale of fees and the estimated income from them are detailed hereunder:—

A. Fee for Investigation at Rs. 3 per case. This would include all requests for reports on the status of Maistries; hurrying up laggards; entrainment of coolies; tracing absconding Maistries; making payments of advances to Maistries, etc. (This heading does not include Warrant Cases, which are dealt with in E. and F. below.)

Rs.

INCOME:—10,000 cases at Rs. 3 30,000

B. On all sums of money recovered by the Department for subscribers, 10% of the amount recovered to be paid to the Department.

INCOME.—10% on Rs. 80,000 ... 8,000

C. Estates should be charged with the travelling expenses of the Indian Agents incurred in connection with their respective cases. This total cannot be very well estimated, but the cost to the Department at present is approximately Rs. 18,000 per annum, and this amount should be recoverable from estates.

INCOME.—Estimated at ... 18,000

D. On all Civil Suits filed by the Department on behalf of estates, a fee amounting to 1% on the amount that the suit is filed for should be charged to the estate.

INCOME.—1% on Rs. 1,00,000 ... 1,000

E. Fees should be charged for all warrants taken out on behalf of estates, and it is suggested to charge the estates Rs. 5 on all cases where the debt due is Rs. 100 or over, and Re. 1 on all cases of less than Rs. 100.

INCOME.—1,500 cases at Rs. 5 ... 7,500

(Re. 1 cases included under "F.")

F. A fee of Re. 1 per case should be charged on all cases taken out by Maistries against defaulting coolies.

INCOME.—3,500 cases at Re. 1 ... 3,500

Total estimated increase of income ... 68,000

The following are the suggestions for the employment of the funds made available under the above scheme:—

Rs.

(1) Re-open the Chingleput Division at a cost of, say, ... 25,000

(2) Engage in direct recruiting in new areas to be approved of by the U. P. A. S. I., say, 2 Europeans, 2 Clerks, Peons and propaganda. 25,000

50,000

Remarks.

Should the scheme of the collection of fees be instituted on, say, the 1st April, 1922, the Secretary, by December 1922, would be in a position to estimate, with a certain amount of accuracy, the funds available to be spent from April, 1923 on re-opening the Chingleput Division, and in direct recruiting in new areas. Should direct recruiting be commenced, it would be advisable to make that section of the Labour Department self-supporting, by charging, in addition to all U. P. A. S. I. costs of recruiting, a fee per capita for every cooly recruited and who worked for a period of six months or more.

The Committee's recommendations on the above scheme are :—

(1) That Item "A" should be eliminated entirely. This was a chief part of the work for which the Department was started, and the Department can only make itself useful by undertaking such work as part of its routine without extra charge.

(2) That under Item "B," 15% on all sums of money recovered should be paid to the Labour Department.

(3) The Committee were of the opinion that the procedure suggested in Item " C" would lead to unnecessary travelling, and hence cannot recommend its adoption.

(4) As regards item "D," in place of the 1% suggested, the Committee consider that a fixed fee of Rs. 25 per case would be preferable.

(5) The Committee agree with the proposed scale of charges in Items " E" and " F," but consider that the charges should be levied on " Warrants served," and not on "Warrants taken out."

Finally the Committee made the following additional recommendations:—

" We recommend that a commission be appointed after Mr. Waddington's return to India to enquire into the working of the Labour Department generally, and into the Income and Expenditure of the Association.

" Further that, in the meantime, the Articles of Association be altered to enable the General Committee to reduce or enhance subscriptions to meet not only the exigencies of the Association, but those of the various products and Districts concerned."

In submitting the above, I have to request you to kindly favour me with the opinion of your Association on the following points : —

I. Are you in favour of either Mr. J. R. Vincent's proposals in original, or as amended by the Committee ?

II. If in favour of the proposals generally, what modifications or additions would you suggest ?

III. With reference to the last paragraph of the Committee's recommendations, are you in favour of the Articles of Association being amended on the lines suggested, and if so, please state exactly what form you consider such amendment should take ?

Yours faithfully,
(Signed) C. H. BROCK,
Ag. Secretary.

TYRES AND TAXICABS.

(SPECIALLY CONTRIBUTED TO THE INDIA RUBBER JOURNAL).

It is a well-understood axiom that the only true test of a pneumatic tyre is the test of the road. The road, however, while essential, does not of itself prove the quality of a tyre to be good, bad or indifferent, and the reason is that conditions of service vary to such an extent as to make fair comparison impossible. The performance of tyres used on a light two-seater car cannot reasonably be set up as against those of a heavy touring or similar type of car. Apart from the fact that no make of tyres can be judged by the performance of a few specimens of that make—whether the performance be an excellent one or the reverse—there are the questions of weight and horse-power of the car, size of tyres, treatment of the tyres both on and off the road, and the class of work engaged upon. All these points must be considered, and, it will be admitted, differ so widely as to render useful comparison a hopeless matter. The test of the road alone, therefore, proves nothing, and is misleading rather than helpful.

When one considers under what conditions a proper test could be carried out, the point immediately presenting itself is that with a large number of cars of the same make, weight and horse-power, taking the same size of tyres, and finally, engaged on the same class of work—that these indeed would be conditions capable of proving in no uncertain manner the quality of the tyres used.

Such conditions existed in the London taxicab service ten years ago, when various companies owned and ran very large fleets of motor cabs, and possessed excellent means of recording the mileage of each and every tyre used thereon. Whether the companies did or did not keep such records the writer is unable to say, but the fact remains that *there* was the opportunity of getting at the real truth of matters concerning the wearing capacity of different makes of tyres.

In 1913 occurred the great taxicab drivers' strike, which lasted some six months, and ultimately resulted in a complete reorganisation of the conditions under which motor cabs were run in the metropolis. The detail is here mentioned, not merely because of its bearing on the present-day London taxicab system, but on account of an interesting effect on tyre life indirectly brought about as a result of the strike. To this we shall refer later.

In 1918 the employees who had been drivers became owner-drivers. They, or at any rate a large proportion of them, either purchased the cabs outright or on the hire-purchase system, and therefore, with the exception of a few firms running small fleets, the man who drives a cab to-day is usually the owner of that cab. The big fleet companies do not now exist, and this source of information for tyre results *par excellence*, if ever available, is closed. Taxicab proprietors nowadays make their own arrangements for garaging the vehicles and buying supplies, and whilst many find their way to the numerous mews or stables at the rear of the larger London houses, a substantial proportion avail themselves of the services of one of the old fleet companies, the British Motor Cab Co., Ltd., reorganised and adapted to fit in with the altered conditions. The firm alluded to works on very similar lines to those of ordinary motor garages, and to a certain extent caters for the private motorist as well as the taxicab owner-driver.

Of tyre transactions done in the small garages the writer does not propose to make any comment, but respecting taxicab tyres as a whole a significant feature of the change over in the ownership of the cabs is the markedly improved treatment the tyres now receive. No longer does the driver jump his cab into motion or stop it with a jerk. Rarely do we see sparks emitted by steel-studded tyres, or patches worn in the treads as a result of locked wheels, and when such events occur we know that they are unavoidable, and attributable to London's heavy and ever disconcerting traffic. The taxicab driver of to-day *owns* the tyres, and endeavours to obtain the best mileages from them. So that the strike of 1913 has had the peculiar effect of considerably improving the average mileage obtained from tyres used on this particular type of motor vehicle.

Of the many makes of cabs now on the streets, one of the most popular is the Renault two-cylinder, and, as the owner-drivers of this vehicle take advantage of the accommodation afforded by the B.M.C. already mentioned, nearly all the conditions required for testing tyres on a big scale are there fulfilled. What is lacking is an authentic record as to the mileages obtained, and this, we are afraid, could not be kept so satisfactorily as under the old system of ownership. Nevertheless, mere inspection of thousands of worn and damaged tyres, and the general reports vouchsafed by the owner-drivers respecting mileages enables the formation of something very closely approximating to, if not actually, the truth. The owners of the make of taxicab referred to are thus in a position to judge the merits of a tyre in a way accessible to few if any other motor users in this country. It might be thought that the natural consequences would be to elevate one or two makes of tyres to supreme favour, and to the exclusion of others, but such is not the case. It is true that a few makes are rather more popular than others, but *none* can claim anything approaching a monopoly.

The conditions governing the taxicab trade in London demand an exceedingly live service in all matters of repairs, replacements, and replenishment. The owner-driver's business is to be on the road carrying his passengers, and he has no time for anything else. Each cab carries a spare rim (the spare wheel has yet to come), and in the event of tyre trouble this is brought into requisition, and a bee-line made for the garage. Here the damaged tyre is quickly removed and replaced by a new tyre, and the owner-driver resumes his job of helping the people of London to reach their destinations. The damaged tyre is promptly put in hand for the necessary repairs, and is available for use by the time its owner is again in requirement. The important matter of inflation is one that tyre manufacturers are keen to ascertain, and in this matter the B. M. C. provides an extremely efficient service. All inflation is by compressed air; there is no physical effort to the tyre filler; no stint of air to the tyre, and the correct pressure is attained within a few seconds. The adoption of air cylinders instead of an air line enables the inflation of tyres anywhere, and at any time, a very useful advantage where large numbers of cabs and extensive premises are involved.

The taxicab, taking as it does a very prominent part in the traffic of the metropolis, engages the close attention of the police authorities at Scotland Yard. Apart from a very minute inspection at the time the cab is licensed to ply for hire, it is, as it were, called upon annually to prove its worthiness to fulfil official requirements. It is estimated that, about 30,000 stoppages of cabs on the streets occur every year owing to breaches of the rules, the cab so stopped being refused permission to ply for hire until the fault, whatever it be, is rectified. So far as tyres are concerned, stoppages have been due to: (1) The owner-driver failing to have two steel-studded tyres on the running wheels (taxicab owner-drivers have just been notified that the police will rigidly enforce this regulation as from 1st September next); (2) steel-studded tyres not being diagonally arranged, i.e., one on the off-front wheel and one on the near-rear; (3) absence of spare rim and tyre on the cab; (4) steel studs of a new tyre not protruding sufficiently from the tread; (5) tyre in very worn condition—especially the steel-studded type.

Tyres are sold to the taxicab owner-drivers at specially reduced prices, the average maximum and minimum discounts being respectively 20 per cent. and 15 per cent. from manufacturers' retail lists. Practically all business in tyres is done through the garages, and on a cash basis. The "Sale or return" system of stocking is employed by some tyre manufacturers, but not by others.

RUBBER ROADS

Dr. Philip Schidrowitz has the following article on Rubber Roads in the *India Rubber Journal* to hand by this week's Mail:—

In connection with the paper on *Rubber Applied to Road Construction*, read by Mr. Arthur Harrison, M.I.C.E., at the recent Exhibition (cf. *R.G.A. Bulletin*, June, 1921), it will be remembered that the estimated cost, at present, of rubber paving was stated to be about £4 per square yard, and the view was taken (having regard to cost and manufacture, laying, and so on) that it would make very little difference whether the actual price of rubber was 6d. or 1s. 6d. per lb. In this regard I may be permitted to recall some figures put forward in a paper read by the writer of these lines on "The Future of the Rubber Industry," read at the Chemical Engineering Exhibition in June, 1913.

Cost of Materials.

In that paper I took as a basis a compound containing *one-third* rubber, the slabs to be one-half inch thick. Taking rubber at 8d. and 2s. respectively, the figures work out as follows—*for materials only*:—

	Rubber at 8d.	Rubber at 2s.
Cost per square yard ...	9s. 10d. ...	24s. 2d.
Cost per mile (36 ft. road) ...	£ 10,570 ...	£ 26,000
Cost per ton of compound ...	£ 36 ...	£ 90

Other factors remaining equal it would follow that a rise in rubber to 2s. would increase the present cost of £4 per square yard to something like £4. 15s.

At the date of writing (1913) the cost of other materials, compared with rubber at 24s. 2d. per square yard, was as follows:—

Asphalt, 1s. 6d. to 2s.; macadam, 1s. 6d. to 2s. 6d.; granite, 3s. to 6s.; wood, 2s. to 4s.; broken stone and tar, 1s. 6d. to 2s. 6d.

Assuming that the price of these materials has risen 100 per cent., it will be noted that with rubber at 8d. the cost is still two to three times that of the older pavings.

Cost per Square Yard.

In 1913 the cost of asphalt, complete with foundations, was about 12s. 6d. to 13s. 9d. Assuming a 100 per cent. rise (and in view of shifting conditions this may form as good a basis as any other), it will be seen that the cost of rubber "all in" is about four times that of asphalt. In this calculation I have taken rubber at 2s., firstly because rubber at 8d. does not pay the grower, and this price cannot, therefore, continue for more than a temporary period, and secondly because, even at the lower figure the disparity is only some 20 per cent. Similar figures apply to wood (8s. per square yard in 1913, exclusive of foundations, 6s. for materials and labour only, 1s. 7d. per square yard per annum on a maintenance contract over 15 years, *inclusive* of foundations and maintenance for 15 years).

Life of Road Surfaces.

While the experiments made so far suggest that good rubber as such will last a very long period, it is not yet certain whether the "anchorage" difficulties have been sufficiently overcome to warrant the assumption that the rubber compound will have a chance of proving its maximum and minimum life value. For other materials, experience in London and other busy towns show that wood may be expected to last about 10 years, allowing —in 1913—5d. to 9d. per square yard per annum for maintenance; asphalt, 7 to 20 years, allowing 5d. to 9d. per square yard per annum for upkeep. It would follow, therefore, if we regard the matter from the economic point of view only, and make no allowance for the advantages of noiselessness, absence of dust, advantages to traffic, and so on, that the useful life of rubber, allowing nothing for maintenance, would have to be something like 30 to 50 years to compete with "maintained" asphalt or wood. It may be that the cost of wood, asphalt, etc., has risen more in proportion since 1913 than my estimate allows for, and if so, I hope some reader who is an expert in this connection will correct me.

Rubber Carpets.

I think it is fairly plain, therefore, that until the genius who shall discover a really cheap method of laying rubber on the road arrives, the development on any large scale of the rubber roadway must remain more or less problematical. On the other hand, the expansion of the trade in rubber floorings or carpets (such as the "Paraflor" shown by the North British Co. at the Exhibition, or the rubber linoleums which, it is claimed, can be economically made by the Peachey process) seems likely to be considerable, as does of course the use of superior rubber tiling, and so on, for high grade "interiors."

TEA, THE CUP OF HUMANITY.

(From *The American Grocer.*)

For untold centuries the flagging spirits of mankind have been revived by magical draughts of that age-old beverage we call tea. Through the timely use of this same beverage, the sick and the convalescent have been sustained and strengthened and nursed back to robust health. Even the vigorous and strong have found in it a spur to jaded nerve—a never failing stimulus alike to mind and body.

"Thank God for tea! What would the world do without tea—how did it ever exist. I am glad I was not born before tea," said Sidney Smith. And deep down in the hearts of people of all ages and in all lands is an answering echo to the sentiments so generously expressed by the greatest tea drinker of all time.

Futile to ask from whence it came, or the precise manner of its first discovery. In vain will the inquiring student turn the pages of musty volumes of forgotten lore. We must assume that the secret lies securely locked in the breast of Confucius himself, China's ancient philosopher and sage, who delivered his wisdom to the world as far back as the 5th and 6th centuries B. C., yet neglected to state just how it came about that the beneficent virtues of "the cup that cheers" were first utilised for the solace and welfare of the human race. The traditions clustering around the origin and early history of tea are so various and conflicting, partake so much of romance and superstition, as to convince those in quest of knowledge on the subject that they must be for the most part purely mythical. One relates that about 2737 B. C. a certain Chin Nung, to whom all agricultural and medicinal knowledge is traced in China, while boiling water over a fire made from the wood of the tea plant, by accident dropped some of the dry leaves into the boiling water and thereby discovered its seductive qualities. Its use from that time became quite general, and spread throughout the country. Still another ascribed its introduction into China through a missionary famed throughout the East for his religious zeal, who journeying eastward from India proclaimed the knowledge of his discovery about 543 A. D. But these accounts and many others that might be cited partake in a large measure of the fabulous. It is quite certain, however, that tea was used as a beverage in the 6th century, and during the 8th century its use had become so common that a tax was levied on its consumption. In ancient days it was regarded as an article suitable for a royal gift, and it was the custom of monarchs of the time to send it, as a special mark of esteem, to the rulers of neighbouring and far away countries.

From lordly mandarin to meanest peasant the Chinaman loves his tea. And while to the mandarin the serving of his favourite beverage is accompanied by many formal rites, to the cooly and to the traveller tea is served simply yet with all its native freshness and deliciousness. The Japanese were quick to acquire the taste, and eventually it became the national drink of the Island Kingdom. The 15th century saw Japan elevate the drinking of this beverage into a religion of the beautiful called Teaism. When the Japanese say of a man "He has no tea in him," they mean he does not appreciate the beautiful, or the humorous, or the ironical. And when a man is too much infatuated with worldly allurements and the joy of living, or has, so to speak, too much "pep," they say he has "Too much tea in him." The Japanese have ever regarded the tea house as a sanctuary and refuge from the troubles and vexations of life. Teaism in fact may be said to be the Art of Living. It is the art of obtaining harmony and serenity in a jarring and discordant world. The Japanese goes to his tea house or tea room to contemplate things which are uplifting and beautiful, and to forget all that is sordid in the struggles and animosities of everyday existence. A noted Japanese writer tells us that in his country the doctrine of Teaism permeates the elegance of noble boudoirs and enters the abode of the humble. "Our peasants all learn to arrange flowers, our meanest labourer to offer his salutation to the rocks and waters. The world was wont to regard our tea ceremony as but another instance of a thousand and one oddities which constitute the quaintness and the picturesqueness of the

Japanese, just as it regarded us as barbarous while we indulged the gentle arts of peace and called us civilised when we began to commit wholesale slaughter on Manchurian battlefields. When it is considered how small, after all, the crop of human enjoyment is, how soon overflowed with tears, how easily drained to the dregs, who shall blame us for making so much of the tea cup? Strangely enough humanity has so far met in the tea cup. It is the only ceremonial which has come out of the East which commands universal esteem. America and Europe have scoffed at our religion and our morals, but have accepted our national beverage without hesitation. The afternoon tea is now an important function the world over, and in the delicate clatter of trays and saucers, in the purring gossip over sugar and lemon, in the soft rustle of feminine hospitality we know that the Worship of Tea is established beyond question or dispute."

MARKET REPORTS.

We have received the following from Messrs T. H. Allan & Co:—

Coffee:—Offerings in auction have been—

August, 24th to 30th.

		Offered.	Sold.	Offered since 1st January
East India	...	...	...	50,637
Nairobi	...	1,550	1,190	51,895
Uganda	...	438	438	...
Toro	...	73	73	26,220
Costa Rica	...	103	103	84,425
Other Milds	...	3,556	1,178	65,687
Brazil	...	...	...	37,815
Robusta	...	200	...	2,377
Tanganyika	...	667	597	7,750

Towards the end of last week there was rather less demand for everything except fine grades, but there was no change in prices. At yesterday's auctions moderate offerings met a fair demand at steady prices. The general tone is very firm, and good coffee is scarce.

Tea.—The market has been a repetition of the previous week—good medium and fine fully firm, lower grades slow, and favouring buyers.

Cocoa.—The market has been quieter, but prices show no change.

Rubber has continued very quiet, but there has been no pressure to sell, and some small American demand made prices harden slightly. They have since eased off again, last night's quotations were 8½d. and 8¼d.

Pepper.—Very quiet.

For the remainder of the season we will only issue a circular occasionally, when there is anything of interest to report.

Messrs. H. J. Rouse & Co., in their weekly coffee report, dated 24th August, say:—

There has been a good tone at the Public Sales this week, and the moderate supplies brought forward met a very steady market. The home trade enquiry has been limited, but a fair business has been doing with the Continent in all grades.

No East India was catalogued, but privately a few second-hand parcels have been changing hands at very full rates.

Fair supplies of Central American were offered, consisting chiefly in coloury sorts of Nicaragua, which attracted keen competition at very full prices. Guatemala and Columbian also sold readily at rather improved values. Nairobi formed the chief part of the East African brought forward, and although the quality on the whole was very poor, it met with a good reception, and realised firm rates.

LETTERS TO THE EDITOR.

(The Planters' Chronicle is not responsible for the opinions of its Correspondents).

U. P. A. S. I. Rules.

Dear Sir,—The " P. C." of 27th August publishes resolutions passed at the U. P. A. S. I. Annual General Meeting.

Resolution No 5; proposed from the chair; Clause B reads:—" That in Rule IX, etc."

From the Books of Proceedings for 1919—1920. I can only find 8 rules printed in the appendix.

Where, and what is this Rule IX?

Yours truly,

WORRIED.

(Note by Ed.—P. C. Rule IX was added to the U. P. A. S. I. rules by a resolution of the General Committee on 6th December, 1920, and reads " The Budget for the ensuing year shall be submitted to the General Committee before the 1st day of March each year"— *Vide* P. C., Vol. XV, No. 50, 11—12—20, Page 851).

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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THE INTER-DISTRICT TENNIS TOURNAMENT.

The finals in the U. P. A. S. I. Inter-District Tennis Tournament were played at Coimbatore on Monday last the 26th inst., and thus brought to a close the first year's programme arranged by the Inter-District Sports Committee. Much as it is to be regretted that games other than tennis could not be arranged, the idea of inter-district meetings has met in this first year with great success. The teams which have taken part in the tennis tournament seem to be agreed on that point, and we can only hope that their numbers will be augmented next year by those who have not been able to take part this year.

The finalists on Monday last were the High Range and the Nilgiris. The former won their way into their position by beating first the Anamalais, and afterwards the Shevaroys. The Nilgiris met and beat in succession the Wynaad and the U. P. A. S. I. team. Owing to the absence at home of Mr. B. A. Marden, Mr. Sydenham Clarke partnered Mr. O. W. Marden for the Nilgiris. Mr. Pinches and Mr. Hawkins turned out for the High Range as usual, and the fact that these two have played together from the beginning of the Tournament contributed in some measure to their success. In the morning Mr. Pinches beat Mr. Marden, 6—3, 6—1, it having been decided to play the best of three instead of the best of five setts. The game between Mr. Hawkins and Mr. Sydenham Clarke was more even, and ran to three setts, Hawkins winning 6—4, 4—6, 6—4.

The doubles were played off in the evening, when the U. P. A. S. I. were "at home" to members of the Coimbatore Club, and a good turn out of spectators watched some really good tennis, in which Pinches and Hawkins, after losing the first sett, played a much steadier game, and ran out winners by 4—6, 6—2, 6—4.

At the conclusion of the Match, Mrs. Anstead presented the trophy, a fine silver cup, to Mr. Pinches, who, with Mr. Hawkins, was also the recipient of a miniature.

We understand the Honorary Secretary of the Inter-District Sports Committee has arrangements in hand for next year's tournament, and is also putting before the Committee a schems for a Golf Tournament, as suggested at the Annual Meeting by Mr. Lake. He is also negotiating for a cricket match this cold weather between South India Planters and the rest of the Madras Presidency.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT NO. 17.

The Deputy Director of Agriculture, Planting Districts, was at headquarters during the week.

2. PATCH CANKER.—There appears to have been a good deal of this disease on Rubber during this monsoon. We have had a good many cases at the Rubber Experiment Stations, and I have seen many cases on estates which I have visited. The cause of this disease is somewhat obscure. I believe it is usually attributed to *Phytophthora faberi*, and in South India, it would appear to have some connection with scaly bark. It is a disease which, I hope, the Rubber Mycologist will take up for study. The usual symptoms of Patch Canker are a splitting of the bark and the exudence of a greenish yellow fluid. The tissues beneath the bark are found to be rotten, and boring beetles often get in and pierce the wood, and a wound is produced. The disease usually shows up in the monsoon, and the treatment is to scrape off the split bark and tar the diseased area. After the monsoon, these tarred patches are examined, and all dead tissues cut away, the exposed wood tarred. The bark then gradually heals over and closes up the wound. It is advisable to burn all the material cut out, as this is presumably full of the causative fungus and may be highly infectious.

3. *The danger of introducing weeds* into a country is well exemplified in India by the history of the Lantana. The *Gardeners' Chronicle* says that, during the war the scarlet Poppy, which is very plentiful in Flanders, greatly impressed the American troops, and seeds were sent by many of them to friends in America, where the plant is now cultivated by hundreds of relatives of fallen American soldiers. Now, however, the Commissioner of Agriculture points out that large monetary losses are likely to occur in agricultural districts if the Poppy is allowed to spread unchecked, and asks that no more seeds of this plant should be introduced.

The Ox Eye Daisy, which was introduced into America about 100 years ago, has caused considerable loss to growers of hay in the United States, and it is feared that the Poppy will become a serious pest in the case of cultivated cereals in that country.

4. THE PLANTING STATIONS.—At the Coffee Experiment Station, cloudy weather has been experienced with drizzles of rain. A total of 0·73 inches was recorded. The Station is being hand-weeded preparatory to putting out the between monsoon application of manure, and at the same time roads are being cleaned up. 7½ acres have been completed, including the manurial series of plots. Leaf disease is less apparent on the Station with the advent of drier conditions, and the sprayed plots are asserting their superiority.

At the Tea Experiment Station, there was very little rain, only 0·9 inches being gauged. The tea is responding to the fine weather, especially that pruned last year, and the yield is improving. 230 lbs. of leaf were plucked from 4·39 acres. As other important work had to be done, only a small area was plucked during the week. In Plots 16, 17 and 18, prunings have been buried in alternate rows with Basic Slag and Slaked Lime at the rates of 1 cwt. and 1,000 lbs. per acre, respectively. Daincha (*Sesbania aculeata*) is coming up well in Plot 26, but failing in Plot 28.

At the Rubber Experiment Station, Mooply, bright weather has been experienced, with only 0·42 inches of rain. Tapping was done daily, and a yield of 74½ lbs. of wet rubber and 15¾ lbs. of wet scrap was obtained from 1,262 trees, or, 0·071 lb. per tree as compared with 0·074 lb. per tree last week. Most of the trees have now put on new foliage after the attack of *Phytophthora* during the monsoon.

At the Rubber Experiment Station, Tenmalai, light rains fell during the week, and 0·85 inches were recorded. Daily tapping was done on 397 trees, and a yield of 73 lbs. 11 oz. of wet rubber, and 5 lbs. 5 oz. of wet scrap was obtained, or 0·19 lb. per tree as compared with 0·14 lb. per tree last week.

(Signed) RUDOLPH D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

23-ix—21.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore,
28th September, 1921.

SECRETARY'S REPORT No. 31.

1. SHIPPING.—With reference to Resolution No. 21 passed at the Annual Meeting, which was forwarded to the Calcutta Liners' Conference, a reply has been received to the effect that the resolution has been passed on to the Lines interested, as the matter is not one which comes within the scope of that Conference.

2. EXPORT DUTY ON TEA.—As mentioned in Report No. 26, Item 6, the Resolution asking Government to reconsider their refusal to remove this duty was forwarded to the Government of Madras. The Development Department, Government of Madras, have issued the following G. O. No. Mis. 1796, dated 23rd September, 1921:—

> "The letter of the United Planters' Association of Southern India read above, will be forwarded to the Government of India."

3. UPASI BUYING AGENCY.—In accordance with the instructions I received at the Annual Meeting, I addressed all Firms on the Buying List of the Agency asking them to accept Orders direct from Members who quote the Number of their Agency Ticket on their Orders. I am glad to be able to report that I have received nineteen acceptances of this procedure, and only three refusals to date. All the Firms who have accepted the proposals have been furnished with a list of Members with the numbers of their Tickets, and a circular is being issued to all Members giving a list of these Firms.

4. BOOK OF PROCEEDINGS.—I am going to Madras on the 30th instant to finish the proof-reading and arrange for the issue of the Book of Proceedings, and I hope that by this day week the books will be on their way to all Members.

5. MEETINGS.—All Members have been notified that there will be an Extraordinary General Meeting of the Association, and also a Meeting of the General Committee on Monday, 28th November, 1921, to be held at Coimbatore. The Annual General Meeting of the Local Branch of the Rubber Growers' Association will be held at Cochin on or about Saturday, 29th October, 1921.

(Signed) C. H. BROCK,
Acting Secretary.

INDIAN TEA ASSOCIATION.

ABSTRACT OF PROCEEDINGS OF A MEETING OF THE GENERAL COMMITTEE, HELD AT CALCUTTA, ON 12TH SEPTEMBER, 1921.

PROCEEDINGS.—The proceedings of the last meeting of the Committee, which was held on the 30th August, were confirmed after previous approval in circulation.

CORRESPONDENCE WITH THE INDIAN TEA ASSOCIATION (LONDON).—A letter, dated 18th August from the Indian Tea Association (London), which had been circulated to the Committee, was now to be recorded.

EXPORT DUTY ON TEA.—The Committee had received, from the United Planters' Association of Southern India, copy of a letter dated 2nd September, addressed by that Association to the Government of Madras, informing Government that a resolution in the following terms had been adopted at the annual general meeting of the Association:—

That this Association expresses its regret that the Government of India refuses to remove this tax on our industry, and hopes that they will reconsider their decision.

The Committee noted the terms of this resolution. The position for the present was that nothing further could be done in regard to the removal of the duty for the current financial year; but they hoped it would be possible to put such a convincing case in favour of removal before the Fiscal Commission to sit in the coming cold weather, that there would be every hope of having it withdrawn. Meantime, however, the Committee would continue carefully to watch developments with a view to reopening the question should an opportunity present itself.

THE TEA RATE.—A letter, dated 31st August, had been received from the Bengal Chamber of Commerce, stating that the tea rate for September would be £2-16-3. A circular had been issued to members informing them accordingly, and particulars of the rate had also been cabled to the Indian Tea Association, London.

OIL FUEL IN ASSAM.—A letter, dated 2nd September from the Assam Branch, was considered. It drew attention to the serious position due to the increase in the price of oil fuel. Many companies had installed oil engines recently, and the Committee of the Branch had been informed that the price of oil had now been doubled, and that no guarantee of delivery even at the increased price would be given by the Assam Oil Company, the Burma Oil Company, or the Anglo-Persian Company.

The Committee discussed the question, which was, they agreed, one of serious concern to the industry in view of the large number of oil engine installations that had been made. They decided, in the first place, to send copies of the letter to the Burma Oil Company and the Assam Oil Company for comment, and to the Indian Tea Association, London, with a view to the latter taking the matter up direct with the Companies there.

CRICKET.

CHICKMAGALUR *V.* MYSORE PLANTERS.

Played on 14th and 15th of September, and resulting in a win for Chickmagalur by 67 runs. The Planters were unlucky in having three of their best players absent, which might have made a great difference to the batting strength of the side. Smith, the well-known N. India fast bowler, without a doubt won the match for Chickmagalur, as without his services it is very probable that the Planters would have turned the tables as far as the result is concerned. The two features of the match were the splendid stands put up by Nixon for the Planters, and the Deputy Commissioner, Mr. Mylar Rao for Chickmagalur. Nixon's innings of 65, with no chances given away, included 10 fours, and for this score he was batting 1½ hours. Harman and E. C. Kent, and Lake all played well, and the class of the bowling can only be judged when it is realised that the former player was at the wickets an hour for his 8 runs, and he is by no means a "stone waller." Fremlin bowled well for the Planters and had bad luck in playing on a ball off Smith after making 31. The Deputy Commissioner pulled his side out of the "ruck" when they had lost seven of their best men for 75, and his splendid innings was of enormous value to his side. It is to be hoped that next year the Planters may have better luck in their yearly efforts as "Plum Warner's" and "W. G.'s." The match was keenly contested to the finish, and it is to be hoped that there may be many more in years to come like it. Full scores below :—

CHICKMAGALUR *V.* MYSORE PLANTERS.

1ST INNS.

CHICKMAGALUR.

Vanugopal	c. Nixon b. Kent	32	c. Bennett b. Fremlin	0
Gulab Singh	c. Bennett b. Fremlin	9	c. English b. Fremlin	27
Eagles	b. Fremlin	9	c. & b. Fremlin	0
Dayanatha	b. Bennett	1	Run Out	10
Narayan Rao	std. English b. Bennett	4	b. Fremlin	23
Smith	b. Nixon	26	c. Bennett b. Fremlin	23
Krishna Rao	b, Fremlin	15	c. De Weck b. Bennett	7
Krishna Iyengar	c. English b. Fremlin	17	std. English b. Bennett	10
G. Ramaswamy	Not Out	9	b. Bennett	4
Mr. Mylar Rao D,C.	b. Fremlin	0	c. Fremlin b. Nixon	41
Chemu Keshavaya	b. Nixon	2	Not Out	1
	Extras	3	Extras	1
		127		147

BOWLING.		BOWLING.	
Fremlin	5 for 50	Fremlin	5 for 69
E. C. Kent	1 for 32	Bennett	3 for 55
Bennett	2 for 20	Nixon	1 for 20
Nixon	2 for 21	E. C. Kent	0 for 2
Lake	0 for 1		

MYSORE PLANTERS.

Lake	b. Eagles	26	b. Smith	1
English	b. Krishna Iyengar	1	b. Eagles	4
Fremlin	b. Eagles	3	b. Smith	31
Kent	b. Venugopal	15	Not Out	21
Nixon	b. Eagles	65	b. Smith	9
Scholfield	b. Smith	0	b. Eagles	0
Bennett	b. Smith	0	c. Smith b. K. Iyengar	2
Harman	Not Out	8	b. Smith	0
Kirwan	Run Out	0	c. Vanugopal b. Smith	1
Allardice	b. Smith	0	Absent	...
De Weck	c. Ramaswamy b. Smith	0	b. Smith	0
Saldana	Absent	...	b. Krishna Iyengar	8
	Extras	6	Extras	6
		124		83

BOWLING.		BOWLING.	
Eagles	3 for 48	Eagles	2 for 35
Krishna Iyengar	1 for 25	Smith	6 for 38
Smith	5 for 33	Krishna Iyengar	2 for 11
Vanugopal	1 for 10		
Narayana Rao	0 for 11		

CINCHONA PLANTATIONS IN BENGAL.

The following extracts are taken from the annual report of the Government Cinchona Plantations and Factory in Bengal for the year 1920-21 :—

The plantations are still suffering from the effects of the war drain, but the results are not quite so bad as superficially they seem to be. In 1918 when things were at their worst, it was seen that the uprooting of immature trees for the sake of an immediate harvest could not go beyond a certain limit. At the same time, in view of the probability of the world's supply of cinchona bark—except for the comparatively trivial amount of Indian-grown bark and the small produce of British estates in Java—being controlled by a few Dutch firms—a control that is now in operation—it was most desirable that some means should be found of allowing a reasonable amount of bark to be harvested while yet giving the plantations a chance, ultimately, to yield an approximately full quantum. For very many years it has been the practice entirely to uproot cinchona trees for harvest. This method has the advantage of collecting the bark of the root as well as that of the stems and branches, and as the amount of root bark, which is slightly richer in alkaloid than the stem and branch bark, forms from a third to nearly a half of the total bark yielded by an uprooted tree, the immediate yield of bark is considerable. The method has the disadvantage of finishing the tree, but provided it has been possible to allow the tree to reach a commercially exploitable maturity, the disadvantage is more apparent than real.

In the early seventies of last century "coppicing" was tried on Mungpoo plantation. In "coppicing" only the stems and branches are cut, the root being left undisturbed. If the process is successful, new stems spring up from the stumps, and after some years the new growth can be cut, and the roots again left undisturbed, or also cut out. The harvest is collected in two, or possibly more than two instalments, at intervals of some years (five or more), the roots ultimately also forming part of the harvest. The results obtained on Mungpoo more than 40 years ago were considered rather discouraging, but as these experiments were on quite a small scale and were concerned with *C. succirubra*, whereas the species now cultivated is the very different *C. Ledgeriana*, it was resolved to try coppicing on a fairly large scale on Munsong Plantation. So, towards the end of 1918, 115 acres were "semi-coppiced," being 79·5 acres of *C. Ledgeriana*, and the rest *Hybrid* and *C. officinalis.* By "semi-coppicing" is meant that only half the number of stems from a root—when there is more than one stem—are cut off. In the spring of 1919 the coppicing was completed. The result has been excellent, for the new stems from the roots have developed in two years to such an extent as to give an appearance equal to three-year plants grown from seed. The harvest from Munsong for 1920-21, amounting to 324,804 lbs., was got by coppicing 334 acres. There is good reason to expect that the same acreage five years hence will yield the same amount of bark from new growth, and in addition root bark equal in amount to at least a third of the total ultimate yield. The ultimate yield may not come up to the original estimate based on the assumption that it would be possible to allow trees to reach an exploitable maturity and then to uproot them entirely, but in the circumstances this cannot be helped.

On Munsong considerable damage was caused by such various agencies as hail, wind storms, deer and rats, but most of the casualties have been replaced. On Mungpoo a new enemy to cinchona has appeared in the shape of a boring beetle, identified by the Imperial Entomologist as *Xyleborus fornicatus*, the "shot hole" borer of tea, which attacks the stems. The only treatment is to cut down and burn the affected trees. So far, no great damage has been done.

The total acreage under cinchona is 3,236 acres, of which 2,340 are under six years of age. The approximate total number of trees is 5,400,000. The total harvest was 501,018 lbs. of dry bark.

FACTORY WORK.

617,018 lbs. of mixed plantation barks were used up, being 216,106 lbs. of Mungpoo and 400,912 lbs. of Munsong bark, with average quinine percentages, respectively, of 4·72 and 4·4. About 92 per cent of the quinine in the bark was extracted, the products being 23,984¾ lbs of quinine sulphate, 386 lbs. of quinine hydrochloride, equivalent to 431 lbs of quinine sulphate, and 10,626½ lbs. of cinchona febrifuge containing 1,269¾ lbs. of quinine sulphate. The total output of all sorts from plantation bark was 34,997¼ lbs. In addition, from 10,600 lbs. of Java bark of analysed quinine contents of 6·58 per cent., 655 lbs. of quinine sulphate, and 196 lbs. of cinchona febrifuge were manufactured for the Government of India. 4,000 lbs. of cinchona febrifuge were also purchased from the Government of Madras.

COST AND VALUE OF PLANTATION BARK.

The Mungpoo harvest of 176,214 lbs., cost, at 3·6 annas per lb., Rs.39,647. Its average quinine percentage being 4·72, with a unit rate of 2 annas, its value per lb. was 9·4 annas, or its total value Rs. 1,03,515. The Munsong harvest of 324,804 lbs., at 2·7 annas per lb., cost Rs. 54,810. With an average quinine percentage of 4·4 its market value was at least 8·8 annas per lb., or a total of Rs. 1,78,642. Total cost of the total harvest was Rs. 94,457, as against a market value of Rs. 2,82,167.

FRUIT TREES AND THEIR ROOTS TREATMENT.

BY P. S. GOVINDA RAO, D. D. S.,

District Forest Officer, South Mysore.

Before discussing this question in its practical aspect, let me describe, for a little, the structure of the root of a tree. When a young plant is carefully taken out from loose soil and the soil is slowly washed away from the delicate branches of the root, it is rendered apparent that there is one region of each of these branches to which soil particles cling most tenaciously. This point or region is just behind the tip of each delicate branch of the root, and usually extends for about an inch up the rootlet. This is the part that is able to take up water from the soil, because here are developed peculiar hairs which are termed *root-hairs*. These root-hairs are best shown if we grow a seed between layers of wet blotting paper. The young roots, as they come out from the seed, are seen to be covered with a white felt of hairs. These hairs are the true absorptive organs of the root. If such a root hair is examined under a microscope, we see that it is a long thin sac lined with the living material (called protoplasm) and containing a clear fluid called cell-sap. Water from the soil can pass through the fine cell wall, and the delicate living membrane. Thus, the cell-sap becomes greater in volume and more dilute. A root-hair cannot hold an indefinite amount of this fluid, and water is continually being passed on to the inner cells of the root. As soon as this water reaches the layer of young wood in the root it begins to ascend, for the young wood is a system of pipes specially contrived by nature for the purpose of carrying water upwards. So, as soon as the water gets to this region of the young wood it begins to ascend, goes up the stem and finally out to the leaves. Some of the water is used up by the plant as it travels through these organs, and much of it is given off through the pores of the leaves. It is important to remember that the region of root hairs is the only place on the root where water is absorbed. The other older and stronger parts of the root conduct water, but do not absorb it. Anything, therefore, which injures the root-hairs interferes and affects seriously with the supply of the nourishing water to the plant.

This continual absorption, *i.e.*, up-take of water from the soil, results in a considerable pressure being developed inside the root, forcing water up into the organs above. This root-pressure, as it is called, is one of the factors causing the ascent of water in plants. This can be clearly shown by a simple experiment. A young *dantu* plant may be cut off near the soil, and a long glass tube fitted on the cut end by means of a rubber connection. A day after the experiment agoing you can see from the movement of the water in the tube how much water has been forced up. The pumping force of the root varies in different trees. It is said that, in the grape vine, where the water has to travel a long distance, it can support a column of 39 inches of mercury.

With the above observation and knowledge on hand, it is easy to consider and understand what the conditions are in which the root hairs can best fulfil their duties, what methods of treatment are rational, comparing these inferences with facts of our own and with others' experience. In the first instance, it is necessary to remember that the root-hairs and all the younger cells of the root proper are living cells, and so require all that living matter stands in daily need of. Before these cells can do any work for the benefit of the rest of the plant, they must themselves be healthy. One of the first requisites for living cells is a free supply of good air. The roots must breathe. In nature there occur certain trees which have become adapted to life in swamps where the soil is close and where the water fills up all the soil interstices. These plants have special arrangements for the supply of air to their roots (*Avicennia aiba* and *Avicennia Officinalis*). The roots of these plants send up peculiar projections above the ground. These are breathing roots. They are full of porous tissue through which air easily passes to the roots in the mud, just as a diver in sea is kept in connection with the upper air by means of the tube attached to his helmet. This fact shows, rather reveals, the extreme importance of air to tree roots. The soil, therefore, in which the roots are situated must be of such a texture that there is a sufficient interchange of the air in the soil and atmospheric air. The air contained in the soil is not exactly the same as that above the soil. Within the soil, oxygen (the life-giving element of air) is always being used up for processes of decomposition of organic substances, and the roots are continually taking in oxygen and giving off other gases. The air of the soil is therefore as a rule poorer in oxygen and richer in other gases than the air above the soil. Here it must be said that there are various conditions that affect the permeability of the soil to atmospheric oxygen. Of these, the two most important are :—

(i) The size and degree of cohesion of the soil particles.

(ii) The amount of water in the soil. With regard to the first point if a soil is caked and hard, although air may penetrate into the large crevices which are produced when such soil splits, still, the inside of large masses of soil is insufficiently ærated. Small grained soil, after watering, tends to clog and cake like this. Larger grained soils cake less readily.

With regard to the second point, the condition of the ideal soil for fruit trees may be compared to that of a fine sponge which has been soaked in water, and thoroughly wrung out. Every part is covered with a film of water, and yet the whole mass is permeated by all. Over-watering fruit trees has therefore two serious effects. In the first place, the spaces in the soil which should be occupied by air are, instead, filled up by water, and in the second place, the soil afterwards cakes and hardens, especially if it is all clayey, into an impermeable mass. It is worth while noticing here that the water in the soil which the roots absorb is not that which lies freely in the soil interstices, but the film of water which remains surrounding the soil particles when the excess has drained through. The root-hairs apply themselves closely to the soil particles and absorb this film. From this fact, a useful hint as to the sub-soil of a fruit plantation is got at. It is most desirable that it should be of such a kind as to allow of good drainage. A laterite sub-soil ensures the passing through of superfluous water. A clay bottom means that there will be danger of water-logging. Thus, two points of practical importance are arrived at. In choosing a site for a fruit garden, we must therefore see that the soil is of such a texture that is readily permeable to air and that the sub-soil is of such a nature as to allow the draining off of superfluous water. If the soil and sub-soil are not naturally of the desired consistency and character, still we can, by special treatment, bring about the conditions we desire to some extent at least. The texture of upper soil we can change by manuring and cultivation. Dry, sandy soils need much bulky manures from the cow house or stable, and there is scarcely any soil that will not benefit from green manuring. These organic manures increase the porosity of the soil, enhance its water-holding capacity and are themselves valuable additions to the plant food of the soil. Cultivation is essential both before and during the life of the plants. It has been again and again proved that deep and thorough ploughing and cultivation before planting the trees is an excellent investment of time, money and labour. With uncultivated land, it is well to do the first cultivation as much as a year ahead of the time of planting. During that period the land can be occupied with other crops, which will give some return for the outlay, keep down weeds and maintain the looseness of the soil. On the spots where pits are to be made, however, there should be no crop during the three months previous to planting. The pits themselves and the sub-soil removed from them should be exposed to air and light.

With regard to the sub-soil, if it is not sufficiently porous, the defects should be remedied by means of proper drainage. If drainage is not arranged for, the effects of over-watering in such soils may effect very adversely indeed. In the case of orange tree, rotting of the roots sets in, and the trees gradually die. Moreover, the water may rise again to the surface, bringing with it sub-soil salts and making the land salty and unfit for fruit trees. Such cases were brought to my notice for advice in Kadur and Tumkur Districts. In one case the remedy of promptly cutting drains remedied the defect, and in the other case, the gratuitous advice was not availed of. In Mysore, I was shown some orange trees which developed a peculiar yellowing of leaves and a gradual death of the branches. The soil at the foot of trees in these patches was always occupied by succulent weeds of a type associated with salty conditions. The water of the well in the garden was not salty, and the previous manuring was not such as to lead me suspect that the disease could have been caused by it. On the soil being analysed, a large proportion of salts was revealed. It was then rendered apparent that the disease was due to increase in the salts of soil due to defective drainage. In this case, the digging of deep drains at intervals, with an out-fall beyond the garden, is the only current remedy.

To ensure a supply of free air to the roots of standing trees, it is essential that the soil round the trees should be broken up now and then to prevent caking. The breaking up process is best done twice a week, after each watering. The hand pick *(kai gudli)* may be used for this operation. The top layer of soil should be pulverised to act as a porous mulch, and a hand rake is excellent for this purpose.

Weeds growing under fruit trees have several serious effects on the roots. The roots of the weeds occupy the ground and interfere with the roots of fruit trees. Water is stolen by them which the fruit trees can ill-spare. The surface of the soil is blocked by them, and the exhalation of their roots serve to poison the soil atmosphere for the tree roots. The operation of breaking up the upper layers of soil to ærate the roots also removes the weeds, if properly carried out. In Tiptur cocoanut and mango gardens, and in a few mango gardens in Bangalore, thorough digging to one foot deep, as personally seen, has been of immense advantage, and stimulated rich growth and caused extraordinary fruiting. It is necessary to see that the coolies do not injure trees while digging. The consideration of weeds under fruit trees naturally leads to the question of sub-crops.

The same principles must be observed here. Sub-crops must not interfere with the water-supply or æration of the roots of the main crop. Close growing crops and long seasoned crops are therefore out of the question. While the fruit trees are young, brinjals, onions, chillies and other short season crops which are not close growing can be taken between them, but these crops must not be planted close to fruit plants. It is a good rule that a circle, having a diameter of about the breadth of the crown of the tree and a little over, must be left clear round the base of each stem. Suppose we have planted out our fruit trees 15 ft. apart each way, and that the breadth of the crown of each tree is on the average two feet, then we should leave a circle of 3 ft. diameter clear all round the tree, unoccupied by sub-crop. The breadth of the crown of a tree in its early stages roughly corresponds to the area occupied by the roots. The next and succeeding years the dimensions of the tree will increase, and our area for sub-crops will correspondingly decrease, until, when the crowns of trees are nearly in contact, there is no space for sub-crops at all. It is important that the height of the sub-crop should be less than that of fruit trees, since, if the fruit trees are shaded by the sub-crop, then they grow long and lanky.

When the sub-crop is finally removed and the trees have to stand by themselves, this long and lanky stem proves to be weak and useless.

Let us now consider the life of a fruit tree from its seedling stage to its adult condition specially with reference to its root treatment, my present theme. Seeds are usually sown in pots or boxes, or even in shady places in the field. Some fruit trees, such as guavas, are generally grown direct from the seed, and the others, which are grafted or budded, have their stocks from seed, so that the plants in their early stages may be considered as of one kind, whether grafted or not, later on. In the case of plants, such as mango stocks, the early life of which is spent as a rule in pots, special care of the roots is essential. In the first place there must be a hole in the bottom of the pot to allow of the draining away of surplus water. This hole should be covered inside by a piece of curved tile (bokee) with the concave surface down to keep it open. Next to it should come a layer of dry leaves to ensure that fine soil is not washed down, and the hole consequently blocked. On the top of this should come a mixture of medium sifted soil, sand and leaf mould, in which the seed should be planted. Daily watering is necessary. The outside of the pots should be occasionally washed and scrubbed to allow of air penetrating the earthenware, and the surface of the pots must be stirred or raked at least twice a week as said above. It must be remembered that the roots in a pot are in highly artificial and closed conditions, and are, therefore, much more delicate than are roots in the soil of open ground.

For this reason, plants should be taken out of the pots and transplanted to the field at the earliest opportunity. Let me quote here what a very experienced horticulturist writes:—"The way I advise mango seedlings to be grown is to dig a trench, say, nine inches deep, and in the bottom lay corrugated iron sheet, which should be covered with broken potsherds with the concave portions inverted. Over this a layer of coir or teased matting may be spread and then a layer of sound and leaf mould covered over, in which the seeds should be inserted. After germination the roots do not go beyond the layer of corrugated sheet. The seedlings could therefore be removed easily without great injury to the pots used for grafting purposes, or to their final quarters for growing as fruit trees." If plants in pots have been neglected and it is desired to revive them, then the plant must be carefully extracted from the pot with the ball of the earth adhering to the roots. This earth should be carefully removed by washing. Dead, diseased and straggling roots should be removed by a sharp knife. Matted roots should be separated carefully, and the main top root shortened (in trees which will stand this treatment). Mangoes do not stand the amputation of the main root. Oranges and guavas do. Then the plant should be transplanted into porous gravelly soil in a pot and kept in a moist warm shady place till recovery begins. To keep up balance, a number of leaves on this plant should be cut off, or a few branches pruned. While the plant is recovering, water should be given sparingly, as the plant will not have yet developed new root-hairs to absorb it. Root-hairs which closely adhere to the side of the pot and the soil are torn off in transplanting. To get new root-hairs, new roots must be developed. If much water is given before the formation of new absorbing roots, the roots will rot, and all the labour taken will be in vain. When this plant begins to show signs of recovery and vigour, it may be removed to a slightly more exposed place, and thus gradually accustomed to being brought back to its normal surroundings. The next question is:—How should the roots be treated in transplanting? The pit in the field should be dug fairly big, about three feet each way. The pits should have been dug and left open to the air for some weeks previous to planting, to ærate, *i.e.*, weather the sub-soil both in and out of the pit. Well-exposed soil should be put in the bottom of the pit mixed with manure, but manure should in no case be placed in direct contact with the root of the plant. Previous to putting in the plant, a stake should be driven into the pit. To this, the plant will be tied. To put in the stake after planting, means that some of of the roots will be injured. Before planting out fruit plants in their final places, it is well to harden them to their new conditions. If this is not done, the change may be so violent that the transplants will not survive. Many a failure has occurred in planting out mango plants that had been long in the nursery. It must be remembered that, in the nursery the plants will have been in a more or less shady spot protected from direct sun, from wind, and from extremes of temperature. In the field, it is in the open, gets the direct sun, and has all the changes of temperature that are going. Moreover, the root system is always slightly injured in the transplanting process so that all the circumstances combine to make the plant lose water rapidly and replace it slowly. It is no wonder that, after a day, the leaves begin to droop and wither and that finally the whole plant dries up and succumbs. The process of gradually accustoming a plant to new surroundings is called ***hardening***. One very simple method of hardening is to take the plant still in its pot out of the fields and plunge the pot in the soil near the place where it is to be transplanted. The plant should also be shaded during the first few days. The shade may then be taken off and the plant left some time longer still in the pot. Finally, the plant should be taken out of the pot and transplanted into the pit prepared for it.

Before the plant is placed in the pit in position, the ball of roots with the earth should be gently eased out, and straggling and diseased roots removed. The plant should then be set on a little mound in the centre of the pit and the roots spread out over the gently sloping sides of this mound. It is a fatal error to have the base of the stem rammed down into the pit and the ends of the roots high up at the edge of it. The soil should now be thrown lightly over the roots and gently pressed down on and between them with a wooden peg. In transplanting, it is essential to bring about a compact connection between the roots and the soil, so that after further addition of soil, and further packing with the peg, the whole surface may be trodden over several times and earth added till the plant is buried up to the same point as it was in the pot it previously occupied. A good soaking of water should then be given. The shoot should be pruned, reducing non-essential branches by about a third of their length and retaining intact such as are necessary to make a good crown. The plant may now be tied to the stake. The string should not come directly into contact with the plant, but should be padded with cloth or straw. When tying the string, also, it should be brought once or twice between the plant and the stake to ensure a better and tighter binding, and to keep the stake from rubbing on the plants. Tying the plant directly against the stake may result in the plant taking the form of the stake, and in the case of a long irregular stake this would mean a most unsightly and useless trunk. The stake should be removed at the earliest possible safe moment, for if the plant gets to rely on the stake, it will become weak stemmed. Besides there is apt to be compression of the trunk at the points where the plant is tied to the stake.

In plants which are intended for further transplantation, such as a nursery man's stock, it is desirable to transplant several times keeping the long roots pruned in, so that there is a great number of short branches with many rootlets. This means that the whole absorptive system is in small compass and readily transportable. If the plant has to be carried some distance before being planted, the ball of roots and earth should be tightly tied up in sacking and steadied somehow during the transit. In trimming and pruning roots a sharp knife should always be used and the cut made in a sloping manner on the underside of the root.

The important feeding parts of the roots are the delicate tipes at the end of the root branches. They must not be injured. Hence, the strong roots that conduct water from these feeding roots to the trunk should not be severed. One can, however, with safety remove these latter formed roots that occur on the main branches nearer the plant. It is wise to do this, as the check on the plant without materially damping it is thus increased. It is also to be noted that old roots heal with difficulty and younger ones heal readily.

The degree to which the roots should be exposed is governed by the same principles. One does not wish to cause the delicate feeding-roots to wither up, so they are not to be exposed. The first two feet of the big roots can be exposed with safety in a ten-year old tree. The exposure and partial drying of these roots also acts as a check on water conduction.

On refilling the pits after a period of exposure, it is advantageous to place manure in the pit along with the replaced earth. It is very necessary to see that the manure is well mixed with the earth before replacing. Orange and other trees may not be pruned if making too rapid vegetative growth at the expense of their fruits, but root-pruning should be resorted to only if the gentler method of root exposure fails to have the desired effect. In severe root-pruning, it may be necessary to cut some of the strong roots as well as the coarse lateral roots. The cut should always be on the underside of the root. It is usually unsafe to interfere with the tap root of big trees. It must be emphatically stated, however, that no amount of root-pruning will make up for a neglect of certain other commonsense precautions. In many gardens the owners expect fruit from trees that are crowded, shaded, and kept damp by a miscellaneous collection of other trees and plants. No root-pruning will take the place of system and care in the arrangement of fruit plantation. Another common belief is that some artificial manure will undoubtedly cause the trees to fruit. No artificial manure is of any use when the conditions of the garden are unhygienic. It is as if a man should demand medicine for a disease which is due to his refusal to wash himself.—" Mysore Economic Journal."

NOTES AND NEWS.

The Tennis Tournament.

Congratulations to Messrs. Pinches and Hawkins on winning the U. P. A. S. I. trophy. It is a very fine trophy, and holds, we should say, about three quarts. The miniatures make good balers.

A Suggestion.

The trophy is so much like an urn, the suggestion has been made to us that the return to their district of the winners should be referred to as " bringing back the ashes." High Range poets, please note.

Seriously.

The *Times* in mail week says :—

It is hardly surprising that recent weeks should have seen a material rally in the tea share market, for indications have been growing that the industry has now experienced the worst that will befall it and that better times are at hand. The extent of the prospective recovery, however, can hardly be determined as yet with any degree of precision. Nearly all the reports of the plantation companies now appearing bear witness to the invaluable assistance which is being rendered by the ability to recover E.P.D. payments and also to the improved prospects for the current year. The aggregate recoveries of E. P. D. obtained by the tea-planting industry alone must run into very large figures. Several tea companies published their reports at the close of last week, and their directors frankly state their expectations of improvement. Thus the New Sylhet board goes so far as to say that the company should be able to show a profit for 1921, and in view of the fact that it made a loss of £13,194 for 1920 the forecast denotes a radical change in conditions. The directors of two other companies speak of the prospect of a material reduction in costs for the current year. Mincing Lane advices point to a decided improvement in recent weeks in the market for common teas, a circumstance which must be attributed to finer plucking. How marked an effect the altered policy of the managements of many of the plantations in this respect is exerting, is to be gathered from the latest estimates of the new season's Indian crop to the end of July next. This is announced as 90½ million pounds, a decrease of 40½ million pounds as compared with last year.

Cicely Rubber Trust.

The Cicely Rubber Estates is one of the older established rubber planting companies which, under the conditions prevailing until recently, were able to pay remarkably fine dividends. Its annual report shows how even the older established concerns have been hit by the unfavourable developments in the market for the commodity, and also provides an example of the way in which the more efficiently conducted concerns are tackling the problems which now confront them. Net profits of the Cicely Company for the year ended March 31 amounted to £1,721 ; for the previous year the total was £36,429. The participating Preference shares, which for 1919-20 received a distribution of 65 per cent., now merely receive their fixed 5 per cent., while no dividend is to be paid to the Ordinary shareholders, against 60 per cent. for the previous 12 months.

The Mercantile Bank of India, Ltd.

We are informed that the Directors of the Mercantile Bank of India, Ltd., have declared an Interim Dividend of 8 per cent., less Income Tax, for the half year ended 30th June, 1921.

LETTERS TO THE EDITOR.

(The Planters' Chronicle is not responsible for the opinions of its Correspondents).

Shipping.

Dear Sir,—With reference to what your "Sorely Tried" correspondent writes in his letter which appeared in your issue of the 17th instant, the percentage of shortlanded or overcarried cargo is very small, and as each steamer deals with a large number of packages, marks of which may become obliterated before they reach their destination, it is inevitable that there must be a percentage of such cargo.

Then, as all such shortages must be made the subject of enquiry at all the steamer's ports of discharge, and, if they are not found at these ports, enquiry (in the case of steamers from Home Ports) must be made of the Home Ports, delay in settlement of the claim results.

If your correspondent intends that claims for such shortages are not paid when he states "practically always, from their Olympian heights, the Steamship Agents eventually repudiate all liability under clause so and so of the Bill of Lading in question," he is undoubtedly mistaken as all such claims are met if the cargo shortlanded or overcarried is not finally delivered, provided it is not lost through a peril of the sea which is insured against.

As regards your correspondent's remarks on Steamers' Bills of Lading Clauses, a steamer is in much the same position as any other carrier.

Yours faithfully,

(Signed) ....
Agents, Clan Line.
Per : Pro : Aspinwall & Co., Ltd.

(Signed) ....
Manager,
Agents, Ellerman Lines, Ltd.

The Labour Department.

Sir,—I wonder if the many Planters who write abusing the Labour Department for its failure to put them in touch with new connections have considered the possibility that the lack of labour they experience is due, in a great measure, to the planter himself. Otherwise how is it, that it often happens that of two estates in the same locality, one may have ample labour, and the other be with none, or in a chronic state of trying to retain what little labour it has through the aid of the Courts. The surest advertisement for an estate is its own coolies, who, if contented and happy, are not only willing to return to that estate year after year, but induce others to go with them.

If some of these confirmed grumblers would make a point of visiting annually the country from which their coolies are recruited, look them up in their villages, and generally take a bit more interest in them, in all of which laudable objects the Labour Department would be glad to assist them to the best of its ability I am sure a lot of the difficulty now experienced by some estates would vanish.

Instead of this, however, the present day Planter adopts the attitude that having subscribed to a Labour Department it only remains for him to sit on the estate and abuse that Department for not supplying him with unlimited coolies. I am sure that Mr. Aylmer Martin had this idea in his mind when he laid down the axiom that the Labour Department did not profess to recruit.

"OLD BRIGADE."

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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CAN SOUTH INDIA GROW RUBBER?

In our Notes and News this week we publish an extract from the Administration Report for 1920 of the Federated Malay States. This appeared in contemporary Journals here and in Ceylon some weeks back, but we refrained from commenting upon it, preferring to get the considered views of the Rubber Mycologist, who knows the conditions further east as well as most people, and whose opinions therefore must carry weight. Mr. Ashplant has by now seen perhaps sufficient of South India Rubber to be able to pull us up if we take his admirable article as pointing a moral, and although perhaps our substitution of the words "Sotuh India" for "Malaya" in our title is a little drastic, he will agree with us that much of what he says concerning Malaya is applicable to South India.

An apparent digression here will perhaps appear later to be quite to the point. In the *Malay Mail* recently, it was stated, on the subject of penal clauses in the Labour Code, that the old style planter "defends these as necessary for the control of the labour force.................. But the old style planter *is usually an ex-Ceylon planter*, with the *tundu* at the back of his mind, etc. ...." The italics are ours. Now there are a good many ex-Ceylon men planting rubber in South India as well as in Malaya, and in so far as South India is concerned we believe we are right in saying that they mostly belong to the clean weeding school, and brought with them to this country the precepts of that body. If Mr. Ashplant is correct in his assertion, we have here conditions almost exactly similar to Malaya. We differ only in the matter of our labour, which is indigenous, and should therefore be cheaper, and in the distribution of our rainfall which is such in Southern India as to emphasise his statements regarding soil wash. Our rubber is invariably planted on steepish slopes and, to quote Mr. Ashplant on Malaya, "under the prevailing system of clean weeding, all the rich upper layer of soil .... is fast disappearing into the rivers." Our outputs have failed to increase as anticipated, and growth, latterly, as well as the rate of bark renewal has shown a distinct falling off. The trees are less vigorous, and girth development has declined.

With regard to the Department of Agriculture, we are in a different position here, because our department is mainly occupied with ryots' crops, and planting is only a secondary consideration whereas judging by Mr. Ashplant's opinion and, we may say, the opinions of the Press of the Straits generally as we know it, the Malaya Department of Agriculture is largely to blame for what it now laments. Here in South India planters have had to contend individually with the questions we are now dealing with, and if they have not had more help from the Department of Agriculture, it is for the reason just stated. As it is, they have benefitted very materially in many ways, and it is their own fault if, on this matter of soil erosion, they have refused to listen to Mr. Anstead who, we believe, has consistently pointed out the folly of clean weeding which is not followed by leguminous cover crops. That is the point where the ex-Ceylon planter let South India down. At the time, the "immediate point of view," as Mr. Ashplant calls it, prevailed with us, and it is only in quite recent years that we have realised the value of cover crops. That "we" even now applies only to a portion of the community, among which may still be found many ardent disciples of the old school.

Summing up, we have got to digest Mr. Ashplant's undoubtedly sound *dicta* that it is impossible by manuring to restore completely the fertility of large areas of washed out soils under rubber, that our manuring system, such as it is, very probably offsets by the damage done to the roots any increased soil fertility which may be produced by the manure, and that if we grew our rubber trees under more natural conditions and by means of cover crops and contour banks, made at the time of planting, retained the precious top soil, it would probably never be necessary to resort to manuring at all.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT NO. 18.

1. CHARCOAL.—With reference to my note on page 546 of this volume of the *Chronicle* about plant for making charcoal on a commercial scale, I have now received by the courtesy of the Forest Economist, a copy of a letter from the Firm who supply this plant, and a blue print of the plant itself. These are at my office for reference, and are at the service of any planter who may wish to borrow them.

2. BLACK SPOT ON ROSES.—When I was on tour in July, I was shown a disease which caused all the leaves of a Rose in the garden to turn black and fall off, completely defoliating it. This struck me as of interest, as we have so many leaf diseases on our estates of one kind and another, and I sent some specimens home to Dr. Butler, the head of the Imperial Bureau of Mycology at Kew. Mention was made of this Bureau in page 456 of the present volume of the *Chronicle.* It is a mark of the efficiency of this Bureau that I got a prompt answer from Dr. Butler kindly telling me all about the disease, and the information may be of interest to gardeners. Dr. Butler tells me that the disease appears to be quite well known and is caused by a fungus called *Diplocarpon Rosae*, *Wolf*, (till recently known as *Actinonema Rosae*). Only a few variety of roses have been reported as quite resistant to this disease, *R. indica*, *R. rubiginosa*, *R.. gallica*, and *R. centrifolia* are markedly resistant. Of 600 named varieties in a botanic garden in Italy, only four were found free from attack, *viz.*, Bell Angevina, Triomphe d'Alencon, Abel Grant, and Triomphe d'Anger. This is of interest, because in the garden from which my specimens were obtained, only one variety was attacked. Unfortunately, the names of this variety and of the resistant ones were unknown.

Resistant varieties are noted as specially susceptible in Germany, where, also, bushy sorts are more attacked than climbers. Hybrid perpetuals are very severely attacked in America.

Treatment with either Bordeaux Mixture or 90 parts of flowers of sulphur and 10 parts of powdered arsenate of lead is usually very successful. The first application should be made when the buds have formed and the leaves are well developed, and then, once or twice a month. It is useful to pick off and burn affected leaves in the early stages of the attack, when only a few bushes are attacked, to prevent the spread of the disease.

3. THE EXPERIMENT STATIONS.—At the Coffee Station light rain was experienced on every day of the week, but the total only amounted to half an inch. Sickle weeding and lightly forking round the young plants was completed in the Hybrid Plots, and hand weeding was done over two acres. Plots 2, 5 and 10, the Cultivation Series, have been forked. In this Series, one plot is forked each year, one every other year, one every third year, while a control is left unforked. The plots, after forking, are mulched with materials cut from green dressings grown on waste land. Some of the manures for the inter-monsoon application have arrived, but owing to the Moplah rebellion, delay in the delivery of the manures is being experienced. The beans set after the blossom showers of January are beginning to ripen, and will entail an early fly picking this season.

At the Tea Experiment Station, the weather was bright with occasional showers, a total of 1·24 inches was recorded. The yield is improving each week. A total of 1,045 lbs. was plucked from 8·32 acres, a yield of 125 lbs. per acre. Plots 8, 10 and 11 were pruned. Fish Manure was applied to Plot 8, and Muriate of Potash to the China plot.

At the Rubber Experiment Station, Mooply, 1·72 inches of rain were recorded. A round of weeding has been done, and the drains cleaned, and dead wood brought in by the monsoon floods has now been completely removed. A heavy dose of Basic Superphosphate has been forked into Plot 17. Daily tapping was done, and a yield of 99 lbs. of wet rubber and 16 lbs. of wet scrap were obtained from 1,260 trees, or 0·091 lb. per tree, as compared with 0·071 lbs. per tree last week. Plot 16, which was rested during July and August, continues to give the best yield. 500 rubber seed from special trees at Peradeniya have been received. These are to be planted out next to the Seed Selection plot.

At the Rubber Experiment Station, Tenmalai, only 0·77 inches of rain was recorded. The stream running through the Station is drying up, and it looks as if we should have a shortage of water this year. 397 trees were tapped daily, and these gave us 69 lbs. 10 oz. of wet sheet and 6½ lbs. of wet scrap, a yield of 0·19 lb. per tree, the same as last week.

(Signed) RUDOLPH D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

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SCIENTIFIC DEPARTMENT, U. P. A. S. I.

Spraying of Coffee.

In 1915-1917, a number of experiments were carried out which demonstrated the fact that if Coffee is sprayed with Bordeaux Mixture twice in the year, once about May and again between the monsoons, about September or October, it can be protected, to a large extent, from the attacks of both leaf disease and black rot. With regard to these experiments and the discussion which then took place about them, I would refer those interested to the following pages of the *Planters' Chronicle*, Volume XI, pages 296, 307, and Volume XII, pages 40 and 538.

Two considerations emerged from these experiments:—

(a). Whether labour and water could be found at the right time to carry out the necessary spraying operations.

(b). Whether the gain in health of the trees and the crop compensated for the cost of the work.

With reference to the first question, if water and labour are not available, there is no more to be said, and evidently spraying cannot be done. With reference to the second, a certain amount of evidence has been brought forward to show that spraying is a practical and a paying proposition, but it needs most careful supervision, as it must be done thoroughly to be effective,

The work was a great deal hampered after 1917 by the difficulty of getting sprayers and copper sulphate.

The Acting Government Mycologist and I feel that the time has now come to continue these experiments, and to endeavour to demonstrate in a practical way the actual benefit to be obtained from spraying. Moreover, since 1917, it has been found that weaker solutions of Bordeaux Mixture are effective against fungoid attacks, and new and better adhesives and spreaders have been discovered. Reduced strength of solution, of course, reduces the cost per acre of the spray material.

We propose, therefore, to carry out a new series of spraying experiments to throw light on these points. The subject was discussed at an informal meeting of Coffee planters held at Bangalore on 26th August. Several offers of suitable areas of Coffee have been made for the conducting of the experiments, one at least of which we shall be able to take up. Lack of funds for this work somewhat "cramps our style" however.

A scheme of experiments was put forward at the meeting for consideration, and though few planters felt inclined to carry this out in its entirety, we were asked to publish it, so that individuals might carry out some parts of it, and several men said they were going to do some spraying in any case.

The full scheme is set forth below. The best arrangement is, probably, to have plots of at least half an acre in size, though one acre would be better, and to choose these out of a fairly even bit of Coffee which usually suffers from an attack of leaf disease. *All the experiments should be done in duplicate.* The plots may be arranged chess board pattern, or side by side, as most convenient.

The results as regards the incidence of leaf disease can only be judged by eye, and must always remain, to a certain extent, a matter of personal opinion and judgment. This is not so satisfactory as definite figures, of course. It would make the experiments far more valuable if, in addition to this estimate of the amount of protection from leaf disease attained, the crop was picked and weighed from each plot separately, and if a sample bushel could be cured from each. This would give figures to show how much crop is saved by protecting the bushes from leaf disease, and also show whether this protection increases the weight per bushel of the coffee and the proportion of A in it. Past experiments have indicated that this is the case. Such figures would also give a basis of comparison of what is to be gained as compared with the cost of the operation, and whether spraying is a paying proposition.

Planters who take up any part of this scheme of experiments are, therefore, advised to conduct them along the lines indicated above, and carry them to a final conclusion, which will give figures of yield.

SCHEME OF EXPERIMENTS.

Experiment.	Fungicide.	Strength.	Adhesive.	Strength in 100 gallons.
1.	Bordeaux Mixture.	Full, *i.e.*, 4 lbs. $CuSO_4$ 4 lbs. Lime. 45 gallons water.	Resin & Soda.	7½ lbs. Resin. 3¾ lbs. Soda.
2.		Do.	Do.	5 lbs. Resin. 2½ lbs. Soda.
3.		Half strength.	Do.	7½ lbs. Resin. 3¾ lbs. Soda.
4.		Do.	Do.	5 lbs. Resin. 2½ lbs. Soda.
5.		Full.	Casein.	½ lb.
6.		Half.	Do.	½ lb.
7.		Full.	Fish Oil. Resin Soap.	10 lbs.
8.		Do.	Do.	5 lbs.
9.		Half.	Do.	10 lbs.
10.		Do.	Do.	5 lbs.
11.	Lime. Sulphur.	Normal.	Nil.	...
12.	Blighty Burgundy Mixture.	1 lbs. to 3 gallons water.	Nil.	...
13.	Do.	1 lbs. to 6 gallons water.	Nil.	...
14.	Pickering spray.	2 lbs. 10·703 $CuSO_4$ 2 lbs. Lime. 60 gallons water.	Nil.	Nil.

Each series of 14 experiments should contain at least 3 controls which are not sprayed at all for purposes of comparison, so that the complete series consists of 17 experiments. These should be carried out in duplicate. If the plots chosen are one acre each in area, to conduct the full series of experiments an area of 34 acres is required, if the plots are half acre in size, 17 acres is sufficient. Planters will be able to pick out portions of this scheme which they may care to try.

The results to be recorded, if the experiment is a complete one, are the following for each plot :—

1. Size of the plot.
2. Number of Coffee bushes.
3. Date of spraying.
4. Cost of spraying.
   (a) Materials.
   (b) Labour.
5. Comparative incidence of disease.
6. Weight of Crop.
7. Weight of a sample bushel of cherry.
8. Weight of cured Coffee.
9. Percentage of sizes.
10. Market price of Coffee.

It is assumed that all planters know how to make Bordeaux Mixture, but advice will be willingly given by the Scientific Department about this, if necessary, as also about sprayers.

When the work is begun at the demonstration plot chosen, due notice will be given so that planters in the neighbourhood who care to do so, may go and see the spraying being carried out. This year leaf disease came early in Coorg, and the inter-monsoon chance of spraying was missed, so these experiments will probably not be begun in the full scale till May 1922. Times when spraying should be done differ with different districts and localities, and the individual planter must decide upon this for himself, bearing in mind that the spray should be put on a week or two before conditions become favourable to the fungus. The best time will no doubt also vary from year to year with some estates.

(Signed) RUDOLPH D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

NORTH MYSORE PLANTERS' ASSOCIATION.

PROCEEDINGS OF THE QUARTERLY GENERAL MEETING, HELD AT THE TRAVELLERS' BUNGALOW, BALEHONNUR, ON SEPTEMBER 26TH, 1921.

PRESENT.—C. H. Godfrey (Chairman), Capt. H. Browne, F. W. Hight, R. G. Foster, By Proxy: M. A. de Weck (Hony. Secretary).

MATTER CARRIED FORWARD FROM THE LAST MEETING.

1. A revised Statement of Accounts having been drawn up by members appointed, it was presented to the meeting and accepted, pending the explanation of the late Honorary Secretary on his return to this country.

2. Question of the Honorary Secretary's Office Allowance to be deferred to the next Quarterly General Meeting.

3. Report of Rules Revision Sub-Committee. This was deferred to the next Meeting as, as yet, no report has been received.

GENERAL BUSINESS OF THE CURRENT QUARTER.

1. DASARA ADDRESS.—The Address was read and approved of, subject to inclusion of point referred to the final decision of the S. M. P. A

2. AMALGAMATION OF THE THREE ASSOCIATIONS.—Resolved that the scheme *re* Amalgamation, as worked out by the Committee of the three Associations, namely, "that a Central Committee of the three Mysore Associations be formed to consist of the General Committee Members of each Association to the U. P. A. S. I., who, from their numbers shall elect a Chairman and Honorary Secretary. It shall be the duty of the Central Committee to call a Combined Meeting of the three Associations not less than once a year. The Chairman and Honorary Secretary elected shall conduct the business of the combined Meeting," is hereby agreed to.

U. P. A. S. I. ANNUAL GENERAL MEETING OF AUGUST 21ST, 1921.—Proposed from the Chair:—"That any member writing for a definite explanation on any point arising out of the U. P. A. S. I. Meeting, defer asking for same until the Book of Proceedings shall have been issued, should the full report therein fail to satisfy him, if he will then furnish a statement of same to the Honorary Secretary, the latter will forward same to the delegates, who will endeavour to explain further."

ROADS.—Read letter from Mr. E. L. Poyser. The Honorary Secretary was instructed to write to him that the matter has already been brought to the notice of the Government, who have the matter in hand.

(Signed) M. A. DE WECK,
Honorary Secretary.

RUBBER TRADE ASSOCIATION OF LONDON.

Monthly Statistics.

SEPTEMBER, 1921.

Movements of all kinds of Rubber to and from the United Kingdom as per BOARD OF TRADE RETURNS.

IMPORTS.

From	August.			Eight Months ended Aug.		
	1921.	1920.	1913.	1921.	1920.	1913
Straits Settlements and F. M. S. ...	3,234	5,307	2,064	37,229	37,621	15,535
Ceylon and British India ...	1,561	2,865	701	13,583	17,451	4,265
Dutch East Indies, &c. ...	1,134	1,773	184	11,953	8,120	938
Brazil and Peru ...	157	699	754	1,467	6,692	12,860
Other Countries ...	52	221	1,357	556	2,161	12,823
Total Tons ...	6,138	10,865	5,060	64,788	72,045	46,421

EXPORTS.

To	August.			Eight months ended Aug.		
	1921.	1920.	1913.	1921.	1920.	1913.
United States of America ...	2,718	1,252	1,894	8,528	24,629	11,219
Canada ...	2	119	25	37	2,627	317
France ...	1,169	1,067	391	3,648	10,255	3,191
Belgium ...	91	101	173	680	1,856	1,307
Italy ...	117	311	24	717	2,414	153
Spain ...	14	16	4	84	140	52
Germany, Austria, Hungary ...	1,112	381	721	5,214	3,053	7,105
Russia ...	149	3	574	163	29	4,505
Sweden, Norway and Denmark ...	64	13	59	599	756	499
Other Countries in Europe ...	514	65	100	1,410	542	835
Other Extra European Countries...	1	155	61	41	887	506
Total Tons ...	5,951	3,483	4,026	21,121	47,188	29,689

LANDINGS, DELIVERIES and STOCKS in London and Liverpool as returned by the Warehouses and Wharves during the month of August.

		Landed for Aug.	Delivered for Aug.	Stocks 31st Aug.		
				1921.	1920.	1919.
LONDON ...	Plantation ...	6,410	4,253	72,827	30,128	27,783
	Other Grades...	6	17	384	546	558
LIVERPOOL...	Plantation ...	451†	465†	8,063†	1,358†	2,698†
	Para & Peruvian	350	340	1,110	705	1,019
	Other Grades..	...	...	460	443	428
Totals London & Liverpool...		7,217	5,075	82,844	33,180	32,486

† Official Returns from the six recognised Public Warehouses.

Movements of all kinds of Rubber, excluding Gutta, Balata and Guayule, to and from the U. S. A., AS PER RETURNS OF THE UNITED STATES DEPARTMENT OF COMMERCE.

	June.			Six Months ended June.		
	1921.	1920.	1919.	1921.	1920.	1919.
IMPORTS ...	15,457	19,437	16,354	72,303	165,860	122,796
EXPORTS ...	328	393	170	2,622	1,380	932

RECEIPTS AT PARA.

	July.			Jan./July (7 months).		
	1921.	1920.	1919.	1921.	1920.	1919.
Rubber ...	734	1,122	1,200	8,395	14,012	14,975
Caucho ...	454	460	350	3,125	4,950	4,640
Total...	1,188	1,582	1,550	11,520	18,962	19,615

CAN MALAYA GROW RUBBER?

The heading of a paragraph which recently appeared in the *Ceylon Times* "Can Malaya grow rubber?" is about as sensible as would appear such questions as, "Can Burma grow rice?" or, "Can Brazil grow Coffee?" Not only can Malaya grow rubber, but it is the country of all others in either the Eastern or Western Tropics, whose climatic and soil conditions make it pre-eminently suitable for the exploitation of Hevea on a grand scale. Whether Malaya will remain a leading rubber country depends upon the ability of her planting community to maintain the latter of these conditions.

Malaya's chief and only natural handicap is the lack of an industrious native population. It is the absence of this population which, by necessitating the importation of expensive foreign labour, sets a limit to Malaya's capacity for rubber production, and gives countries like Java, Ceylon and South India their opportunity.

The trouble which the Director of Agriculture has, at this eleventh hour, stumbled upon and diagnosed none too clearly in the report above mentioned is nothing other than the old evil of soil wash, and from this, the rubber estates of no country are altogether exempt. The evil of soil wash on rubber estates, though common to all countries, is however, more serious in Malaya, not so much because Malaya has more at stake than other countries, but because Malaya without the high yields which are the result of the happy combination of a fertile soil and a favourable climate, cannot with her expensive imported labour, maintain her place as the premier rubber country. If, as a result of lessening fertility, her yields decline to the levels of other countries, Malaya must inevitably fall behind as a rubber producer.

The soil problem in Malaya is a very old one, and began, not with rubber, which it antedates by a long period, but with Tin. For many years past the operations connected with tin mining have led to the deposition on the land for miles around the mines of a layer several inches thick of fine clay. Under this clay the proper aeration of the soil is impossible, and the organic life of the buried top soil stifled almost completely, with the result, that the land is rendered quite useless for agricultural purposes. Apart from the actual deposition of clay on the land itself, there is a further loss of fertility due to the vast quantities of mud from the mine workings, which are continually deposited in the streams and rivers. The silting up of these water courses chokes up all the small drains on the low-lying land round about, and makes efficient drainage impossible. In this way much valuable agricultural land has become water-logged and sterile. Exactly how much land has been ruined in the course of mining for tin it is impossible to say, but as these operations have now been going on for scores of years, the area of land despoiled probably runs into several hundred thousand acres. All this land is of course flat, and since many of the oldest settlements in Malaya followed the tin mines, an unfortunate consequence is that much of the land despoiled is situated in very accessible districts now served by the Railway.

While the operations necessary in the quest for tin have led to the sterilization of large tracts of land, the wastage due to this cause is trifling compared with that which is continuously taking place on the Malayan rubber estates as a result of the profligate methods of rubber cultivation. History has many examples of wasteful cultivation, but the scale which this waste assumes on the rubber estates of the East is without parallel.

In Malaya there are something like 1,750,000 acres of Hevea rubber.

At the time when the rubber was planted, the land was covered by a layer of six to fifteen inches of good forest top soil. Within this top soil were concentrated most of the soluble ingredients of plant food which were available for the nutrition of the trees. There, too, were all the bacterial organisms by whose activity the fertility of the soil could be maintained. In the subsoil, the amount of assimilable plant food is small, and is usually insufficient to maintain rapid plant growth.

Now when it is pointed out that more than half of Malaya's rubber is planted on slopes, and that the annual rainfall is from 100 to 200 inches, it will be evident that wash is likely to give trouble even under semi-forest conditions. The appalling character of the wash which goes on where the practices in vogue are persistently loosening the soil and laying it bare to the full force of this volume of water, will, therefore, be readily imagined. Under the prevailing system of clean weeding, all the rich upper layer of soil, upon which the prosperity of Malaya ultimately depends, is fast disappearing into the rivers and ocean. If the wastage continues at the present rate, it is easy to foresee a time when the vast areas now under rubber will have become so reduced in fertility as to be incapable of supporting, not merely rubber, but any useful vegetation whatsoever. This is no idle prophesy, as any one who has kept continuous observations of his trees can note for himself. Already the effect of this loss of top soil is perceptible in a number of ways. The outputs on many estates have failed to increase as anticipated, and growth in later years, as well as the rate of bark renewal, has shown a pronounced lag. Estates are by no means uncommon whereon the annual rate of girth development has declined from between four and five inches in the fifth year to as little as one inch in the twelfth or thirteenth year. As growth naturally tends to become less vigorous with age, the significance of this falling off in the girth increment has not been fully appreciated, while the adverse influence upon the yield of soil deterioration is too obscured by Brown Bast to be detected. The disquieting nature of the lag in the development of Eastern rubber trees with age was brought home to the writer quite recently when on a visit to Uganda. Strange may it seem to those accustomed to think of Hevea as a sea level tree, cultivable only on a rainfall of 100 inches. Hevea is grown in Uganda at an altitude of 4,000 feet, and on a rainfall which seldom exceeds 50 inches. At such an altitude, and with such a rainfall, growth, as would be expected, is exceedingly slow. The rate of girth development on the best estates would probably not exceed 2¾ inches per year, which means that trees take approximately eight years to reach a tappable size. There are, however, compensations. With an annual precipitation of only 50 inches, soil wash, though not negligible, is nothing like as bad in Uganda as it is throughout the East. There is, in consequence, no falling off in the rate of growth when the trees reach their teens. Their steady improvement year by year, both in girth expansion and foliar spread, leads in time to an astonishing change in the relative appearance of the rubber plantations. There is enacted almost a vegetative parallel of the history of the hare and the tortoise. For thanks to the better sustained growth of the Uganda trees, plantations which at anything under eight years were miserably inferior to those of Malaya, compare, at a later stage, very favourably indeed. At sixteen years of age, well planted Uganda trees are almost the equals of average Malayan trees of the same age. They are far superior to contemporary trees on the washed out slopes of Malacca and Singapore.

So far, little progress has been made in Malaya with measures for counteracting soil wash. Here and there estates have dug silt pits, or planted cover crops, while some have decorated their slopes with ineffective con tour belts of lemon or guinea grass. The number of estates on which such measures have been adopted, however, does not form a very high percentage of the whole.

It is not easy to understand why Malaya, which has so much at stake in her rubber estates, should be so backward in adopting effective measures for conserving her soil. Possibly it is due to a false sense of values ; to an over-emphasis of certain minor aspects of rubber planting by the local authorities. Every specialist tends to magnify the importance of his particular subject in proportion as he is articulate, and one cannot but feel that at times certain quite minor points in the upkeep of a rubber estate have been accorded more importance than they deserve. There is no specialist in the Department of Agriculture on the agricultural side, that is to say, no one whose academic theories have been tested by actual agricultural practice, and who is sufficiently familiar with the ordinary everyday details of estate work to interest himself in their *raison d'etre*, and this aspect of planting has, in consequence, been rather neglected.

Into such fundamental measures as clean weeding or cultivation, in mature rubber-measures which, apart from their probable damaging character, have cost the industry to date several millions of dollars, no thorough-going investigations have ever been made. Because these practices are employed in one culture with benefit, they have been assumed to be of the same value in a Hevea plantation. We know that looked at from the immediate point of view clean weeding is cheaper than most alternatives, however detrimental it may be in the long run, but on the value of cultivation, and the relative advantages of the different methods of soil preservation, we are still to-day without any quantitative knowledge.

In his report, the Director of Agriculture laments the lack of interest shown by the planting community in soil investigation, and the absence of any desire to follow up analyses with experimental work on fertilisation. With this lament it is impossible to feel any sympathy. It is the business of an Agricultural Department, and not that of estates, to demonstrate first of all the value of manuring rubber. When they have done this and can point to some definite work which shows conclusively the utility of manuring, it will be time for the Malayan planter to sit up and take notice, not before. So far, no experiments on manuring carried out in either the F. M. S. or elsewhere have shown that any return is obtained from manuring Hevea which is commensurate with the cost. Not only is this so, but there is good reason to believe that the increased soil fertility produced by the manure is frequently more than offset by the damage done to the roots in putting the manure in. The repeated failure of manuring experiments to bring about the improvement desired is making it increasingly evident that something is wrong with our methods, and that if we are to manure our rubber estates successfully, the manure will have to be applied in some way not yet tried.

Whatever may be done in this direction, it will be well for those people who imagine that by manuring, it is possible to restore the lost fertility of rubber estates, to get rid of their illusions. On an estate of garden-plot size doubtless something could be done, but the quantity of manure necessary to restore the immense areas of rubber in Malaya to their pristine fertility would cost far more than the original cost of opening and developing the estates. No one who has had any practical experience of manuring rubber can fail to have been impressed by the stupendous problem involved in restoring fertility by means of manure to washed-out rubber soils. The application to the soil round about a rubber tree of a few lbs. of chemica- fertiliser costing from Rs. 50 to 100 per acre scarcely produces a measure able response, and it seems about as futile to offer a tree its nutrition in this form as it would be to try and nourish an elephant on tabloid food.

The difficulties connected with manuring are so great, and the expense so prohibitive, that every effort should be made to conserve the virginal fertility of the soil. If we grew our rubber trees under more natural conditions, and by means of cover crops and contour banks, made at the time of planting, retained the precious top soil it would probably never be necessary to resort to manuring.

It has long been evident to the writer, and he wonders that the Agricultural Authorities in Malaya have not been more alive to the danger, that the approved methods of growing rubber can only end in disaster, disaster not only to the rubber estates, but to the countries in which they are situated. It is unfortunate that the question of soil erosion was not energetically taken up by the F. M. S. Director of Agriculture a few years ago, when the rubber industry was prosperous. In those palmy days there would have been little difficulty in inducing most estates, to take precautions against soil wash. Estates which, from short-sightedness or for other reasons, refused to deal with the wash evil should have had an extra export duty levied upon their rubber. It is so much to the self-interest of an estate to stop the exodus of its soil that coercion should be unnecessary, but the extent of the area exposed to wash on the rubber estates of Malaya would justify the enforcement of soil conservation measures. The F. M. S. Government cannot look unconcernedly on while the land upon which its future revenue depends is rendered sterile. The soil which is now at the bottom of the Straits of Malacca took hundreds, possibly thousands of years to make. It will take a hundred years at least to make another soil remotely as good.

With regard to the other matters raised in the report, the high order of acidity exhibited by the majority of estate soils and the character of the subsoil water, little need be said. An excessive acidity of the soil is doubtless bad for Hevea, but it is easily counteracted by the use of lime, while the subsoil water difficulty is just as amenable to good draining. Neither, therefore, justify Mr. Lewton-Brain's alarums. We have not yet arrived at a stage when plantations can be condemned wholesale by chemical tests, and to write a jeremiad on the evidence of a piece of litmus paper is absurd. The real evil, which has been described at length in this article is so universal, and so palpably pressing for attention that the brief mention which the Director gives it in his report does it less than justice, and owing to his vagueness of reference and hesitance to state the facts in plain English, the one important feature of the report may easily be overlooked.

This report would have had much more value if the relatively minor and always remediable evils had been given less attention, and the trouble which is getting more serious and irremediable year by year had been more insisted upon. It is astonishing that the report should barely acknowledge the efforts made by many Malayan estates to minimise wash, while blaming planters for their lack of interest in soil investigations. It is the experience of the writer that the average Malayan planter is only too ready to adopt any measures on which authorities, either in the shape of his " V. A." or an Agricultural Department, have set the seal of their approval. If the planter has become sceptical of adopting practices which have been recommended on insufficient grounds it is a change for the better. There is a very good rule for those engaged in rubber planting. It is this. " When in doubt, do nothing." There is considerable doubt as to the efficacy of measures such as cultivation, manuring, and the clean weeding of mature rubber areas, and it has not yet been demonstrated that estates which have had less attention in these matters have suffered thereby. There is no doubt whatsoever regarding the consequences which must follow from the continuous loss of top soil, and planters both in Malaya and elsewhere will be well advised to neglect no measures which will lead to its effective preservation.

As the prominence given to the question of soil deterioration in Malaya by the recent official report has given rise to an impression unfair to that country, that Malaya, particularly, is in a bad way, it is desirable to emphasize again that everything which has been truly said of the soils of Malayan rubber estates applies in varying measure to the rubber soils of all Eastern countries. In Sumatra the loss in fertility caused by wash is just as marked, while in Java, S. India and Ceylon soil erosion has long been a serious problem. The wash danger is only more disquieting in Malaya because of the huge area involved, and because the interests of Malaya are so largely bound up with rubber. It has already been pointed out that Malaya's expensive labour makes high yields, and hence the maintenance of a fertile soil a *sine qua non* for the commercial production of rubber.

(Signed) HERBERT ASHPLANT.

EXTRACTS FROM THE REPORT OF THE IMPERIAL SHIPPING COMMITTEE.

1. In July, 1918, the Imperial War Conference passed a Resolution in favour of the appointment of an Imperial Investigation Board with power to enquire into, and report on, all matters connected with ocean freights and facilities, and with the development and improvement of Imperial Sea communications. It was in pursuance of this resolution that Mr. Lloyd George, in June 1920, appointed the present Imperial Shipping Committee.

2. We are led to the conclusion that a central body might serve useful and, indeed, necessary purposes, mainly as follows:—

- (*a*) to perform such duties as may be entrusted to them under laws in regard to Inter-Imperial Shipping, applicable to the whole or to important parts of the Empire;
- (*b*) to enquire into complaints in regard to ocean freights and conditions in Inter-Imperial trade, or questions of a similar nature referred to them by any of the Governments of the Empire;
- (*c*) to exercise conciliation between the interests concerned in Inter-Imperial Shipping;
- (*d*) to promote co-ordination in regard to harbours and other facilities necessary for Inter-Imperial Shipping.

3. We, therefore, have come to the conclusion that it is desirable to create a permanent Imperial Shipping Board, which should exercise all the functions enumerated in the paragraph above, replacing ourselves—the existing Imperial Shipping Committee—whose title, however, we think it might inherit.

4. It is evident that the official representatives of the several parts of the Empire on the Board must be chosen, severally, by their Governments. The choice of the Chairman and of the representatives of shipping and commerce must ultimately rest with some Imperial authority, or in default thereof with the British Government acting in consultation with the Governments of the other parts of the Empire. In choosing the representatives of shipping and commerce the responsible authority should, as is customary in such matters, consult the recognised associations.

5. In making the above recommendations we do not contemplate that there should be set up any office in the nature of a Government Department. In addition to the actual members of the Board, we think that only a very small Secretariat would be required, and that the services of the Board, with the exception of those of the Chairman, would be honorary. The total expenses should thus not reach more than a very few thousand pounds, and we think that these should be met by agreed contributions from each part of the Empire represented on the Board.

6. THE NEED FOR FURTHER HARBOUR ACCOMMODATION ON THE SOUTH-WEST COAST OF INDIA TO SERVE AS AN OUTLET FOR PRODUCE FROM COCHIN STATE AND ADJOINING DISTRICTS.

The United Planters' Association of Southern India made representations on this subject in January, 1921. The High Commissioner for India supplied to the Committee full information as to existing schemes for the improvement of the harbour at Cochin, and after considering the official reports and correspondence available the Committee replied to the Association in April, 1921, to the effect that the development of the Port of Cochin was not apparently being delayed more than was necessary owing to physical and financial conditions, and that in the circumstances it would not be helpful for them to press the authorities to hasten the matter, as the Association had requested.

NOTES AND NEWS.

The Secretary's Report.

The usual weekly report by the Secretary, U. P. A. S. I. is not forthcoming this week, as Major Brock has only just returned from Madras, where he has now made final arrangements for the issue of the Book of Proceedings of the last Annual Meeting.

The Book of Proceedings.

We understand the Book of Proceedings will be sent direct by the printers to those who have ordered copies, and as the final sheets are now being struck the books may be expected to reach subscribers some time next week. Further copies may be obtained on application to the Secretary, U. P. A. S. I., Coimbatore. Price Rs. 2-8-0.

The R. G. A. Scheme.

The following cable has been received by the Secretary, U. P. A. S. I., from the Rubber Growers' Association, London :—"Voting insufficient support rubber Producers Corporation Scheme abandoned."

Some Correspondence.

Our correspondence pages this week contain three letters commenting on an article which appeared in the Planting Page of the "Madras Mail" on 27th September last. So far as we remember, the article in question was nothing more than a skit on the "P. D." but in face of such a combined attack we hope "C. J." will realise that humour is a very thin cloak under which to hide ridicule. Evidently, there was more in the article than met our eye, since three separate correspondents have entered protests.

The Rubber Mycologist.

In this issue we welcome Mr. Ashplant's first contribution to our pages. The *raison d'etre* of his article is contained in the following paragraph, taken from the report of the Chief Secretary on the administration of the Federated Malay States for 1920 :—

> "The conclusions arrived at by collating the results of soil analyses for rubber estates are recorded by the Director of Agriculture in

the following terms:—'It appears from the results of chemical analyses, that much of the soil now carrying rubber is exceedingly poor, and is losing its virginal fertility with such rapidity that artificial compensating elements must shortly be resorted to on a large scale. In many cases, not only is the surface soil being denuded of its plant nutrients more quickly than weathering can replenish the supply, but the underlying subsoil is in an unhealthy condition, and likely to become more so on account of the water table and the character of the subsoil water. No definite data have been obtained to show the actual relationship between soil acidity and rubber yields, but the high order of acidity exhibited by the majority of estate soils shows that an unhealthy condition for root development is the rule rather than the exception. In connection with soil analyses for estates, it must be recorded that there is a lamentable lack of interest displayed by the planting community in the whole subject of soil investigation, and there appears to be no desire to improve soil conditions by following up analyses with experimental work on fertilisation.' On most estates efforts to prevent soil wash are being made by catchment pits, terracing, contour draining, contour planting of Guinea-grass or citronella, and by the planting of low-growing cover crops."

LETTERS TO THE EDITOR.

(The Planters' Chronicle is not responsible for the opinions of its Correspondents).

I.

The "Old" and the "New" Schools.

Dear Sir,—Your readers will doubtless have seen C. J's latest effusion in the issue of the "Madras Mail," dated 27th September on "Saving the Industry" through the "Y. P. C. C."

After perusal of the same I would interpret the mystic letters Y. P. C. C. as Young Popinjay's Camouflage Course, because real solid hard work does not apparently come within the purview of his superficial survey of the Planting Industry.

The would-be Saviour of the Industry preaches contentment with modern conditions to the P. D. His text has already been succinctly expressed in the words of the well known poet:—

'The Butterfly upon the road
Preaches contentment to the Toad.'

Looking at the matter from the point of view of the poor despised Toad, the latter has little use for the freak-of-nature which emerges as a full-fledged Butterfly before passing through the caterpillar or, in planters' parlance, the "creeper" stage, and also objects to the position assumed "upon the road," whereas the S. D's real business is off the road and in the field if he is to check and supervise his work.

In a bushel of chaff I have winnowed one grain of sense, namely that the root trouble (as C. J. sees it) is to "rescue the S. D. from his pitiable state of rottenness." Any "middle-aged" planter knows that the simplest remedy for root-rot in coffee, rubber or tea is to uproot it entirely, burn it and dig a trench round the spot to prevent the pernicious influence spreading. Let us hope such drastic measures will not be required in C. Js case.

His strictures may or may not apply to the S. D. in the "backwoods of Cochin," but my experience of the modern S. D. has not been so unfortunate.

The contrast between the old-fashioned P. D. and the type of S. D. that C. J. pictures is admirably brought out in an article entitled "Musings of a Mofussil Memsahib" that appeared in the August number of the *Indian Scientific Agriculturist*, from which I take the liberty of quoting the following extracts:—

> '... the older man......loves his work and does not consider it merely a great handicap race for sixpenny pieces. Though having a due appreciation of money, his pay is not the main thing, he is keenly interested in every branch of his work, knows the natives under him individually, looks on them as human beings, advises them, hears their grievances, settles their quarrels, and is indeed a "pucca mabap." These are the men we want in these troubled times everywhere, and the men the coolies need and have confidence in........... There is rather a tendency among the younger generation to consider amusements the main object in life. They do what work they must, but no more. Too much bother to study the language, if they know enough to get along. No use worrying about the people, the native overseers can look after their interests (more often their own)........ ...... those who play hard usually work hard: but eight hours club after the outdoor sport is hardly a fair proportion, and is there time or inclination in "the morning after" to put in a satisfactory day's work before the next evening's "khel"?'

Perhaps the above extracts contain a hint of C. J's root-trouble.

Yours truly,

ANCIENT AND MODERN.

II.

Dear Sir,—I don't think as an "Old Planter" I can let C. J's article in the "Madras Mail" of the 27th ultimo, on "Saving the Industry" through the Y. P. C. C., pass without comment, as I consider it is a distinct slur on what apparently is his own profession, and the Planting Industry generally.

If the article had been good-humouredly facetious no reply would be necessary, but there appears to be an undercurrent of "venom" throughout the article against men who are responsible for carrying on the sound traditions of the "Old School."

Under modern conditions the present-day S. D. will never experience the hardships of the old time Pioneer, but it is surely bad taste on C. J's part to try and be-little the work of men to whom he doubtless owes his present job.

Yours faithfully,

OLD PLANTER.

III.

Dear Mr. Editor,—As an S. D., I beg to protest against C. J's article in the last Planting Notes of the "Madras Mail." It is to be hoped that all loyal S. Ds. will agree with me that we should bar objectionable screeds of this description, which may bring us into ridicule, and earn us the contempt of a body of men to whom I, personally, take off my hat.

I should like to know on what grounds C. J. poses as spokesman for the S. D's as a body. I, for one, have no time for his precious "Correspondence College."

Yours faithfully,

ANTI N. C. O.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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RESTRICTION OF RUBBER.

The discussion on Rubber Restriction of Output at the Annual Meeting of the U. P. A. S. I. in August last takes on a new aspect now that the Book of Proceedings is to hand, and we can study the debate in cold print. Curiously enough we find comment on similar proposals to those put forward at the U. P. A. S. I. meeting in one or two of our contemporaries in the East dealing with Rubber. They make an interesting comparison and show that South Indian Planters in passing their resolution are at least sinning in good company if, indeed, it is thought at all that the proposal is wrong in principle.

Speaking on the subject of restriction at the Annual Meeting in July of the Bukit Mertajam Rubber Company, the Chairman (Mr. A. G. Angier) complained that the point had not been clearly enough defined. He thought that restriction is generally based on what would be the estimate of the output for the current time, and, continuing, said:—"The sanguine man may easily take a high estimate figure and then proceed to halve it, and the result would be that far too much rubber is being produced to be of any help to the industry. We have no reliable figures evenof planted acreage, and what a 25 per cent. or 50 per cent. reduction is cannot be expressed in tons. It is little more than guess work." However, Bukit Mertajam reduced to 25 per cent. as from November 1; subsequently they restricted to 50 per cent., and last March stopped tapping altogether during the wintering period. This latter procedure Mr. Angier thinks would be a wise policy to adopt every year, even in normal paying times, as the trees are much benefitted thereby, and valuable bark is conserved which is now expended for relatively small quantities of poor latex.

It will be seen from this that the Company stopped tapping in the wintering period presumably for the first time in its history, and the Chairman makes the discovery that, apart from the restriction in crop thus effected, considerable benefit has accrued to the trees. In a speech, by Mr. Maude of the Cicely Company, he goes one better and advocates a three months cessation of tapping in each year, and the same idea has been put forward by Mr. H. J. Temple, whose lengthy letters ro the *Times of Ceylon* on the subject have been a feature of that Journal's recent issues. The trend of opinion in these three cases is thus towards the same ideas as those expressed in the U. P. A. S. I. resolution, and if planters in Ceylon, the Straits, Java and Sumatra were consulted, it is possible they would agree with South India, that this form of restriction would be more acceptable than any other. The great drawback to the 50 per cent. reduction scheme has been, particularly in Malaya, what to do with the surplus labour thus made available, and which, if it returned to India, would give the impression that Rubber was done with so far as that country is concerned. By ceasing tapping for a definitely stated period this difficulty would be overcome, since the labour force would be retained intact for the period of, say, 8 or 9 months when tapping would be in full swing, and the problem would be what to do with it for only the few months remaining during which no tapping is to be carried on. The restriction would be all the more valuable if everybody agreed on its coming into force on the same date, say, 1st January. The London stocks would immediately begin to disappear, and there would be a rush for them as soon as shipments ceased to arrive. The benefit, it is true, might only be temporary, but on the other hand no scheme of restriction other than permanent control of shipments can be of any but temporary good, so that the scheme is no worse than any other so far put forward. On the contrary, it contains advantages which go a long way towards solving that labour problem of which we have written above. Managers of estates would be in a position to get work done, such as clearing out drains, cutting important roads, thinning out, etc., a hundred and one jobs in fact, which may have been held up. To those Managers who are so perfect that they have no such jobs left undone the suggestion might be made that they send their coolies into the jungles to cut down green stuff and mulch it all over their fields. They might thus get back some of that valuable humus which appears to be conspicuous by its absence in most rubber growing countries of the East.

So long as planters have not got to get rid of their labour they do not mind so much restricting for a time; most men will, we believe, agree with that. Three months restriction such as is proposed would get rid of any rate of the visible stocks, and if it proved successful, and necessary, could be indulged in each year.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT No. 19.

1. GREEN DRESSINGS.—In Report No. 9, the figures were given of a cutting of 10 cent plots of *Cassia hirsuta* grown on the Coffee Experiment Station on waste ground, to supply mulch to the Coffee. These plots have now been cut over again, and the figures of yield are given below together with the Nitrogen content.

	1st cutting. 2nd June 1921.		2nd cutting. 27th Sept. 1921.	
	Weight. lbs.	Nitrogen. lbs.	Weight. lbs.	Nitrogen. lbs.
10 cents. cut low ...	610·5	4·4	605·5	4·38
10 cents. cut one foot from the ground ...	731·13	5·3	1,264·9	9·15

It is hoped to get another cutting before the dry weather. This experiment shows what a valuable use can be made of waste ground if it is cultivated in a green dressing crop instead of being allowed to grow weed and cheddy, which is of no value. Use might be made of such areas to supply plant food to the Coffee.

2. TEPHROSIA CANDIDA.—(Boga Medeloa) is sometimes attacked by a disease which causes individual plants, or sometimes even small patches, to wilt and dry up. Wilt diseases are very prevalent in India, and one well known one attacks the Pigeon Pea, while another damages Indigo. These diseases are mostly caused by fungi belonging to the genus *Fusarium*, which are soil dwellers and are capable of a saprophytic life for long periods. During this time, they find nutriment to enable them to live in the dead organic matter in the soil, the humus. When they encounter the roots of certain plants, however, they are capable of effecting an entrance into them and becoming parasitic, resulting in the death of the host plant. Specimens of *Tephrosia* attacked by wilt on the Rubber Experiment Station, Mooply, have been examined by the Government Mycologist, and have been found to contain a *Fusarium.* It is almost impossible to use any preventive measures against a soil fungus of this kind, and the best plan of attack is to raise a strain which is resistant to the disease. In the case of *Tephrosia* used as a green dressing the disease is not likely, probably, to prove very serious, as only a comparatively few plants appear to be attacked and those chiefly in very wet weather.

3. THE EXPERIMENT STATIONS.—At the Coffee Experiment Station, a dry fine week has been experienced, only one shower amounting to 0·08 inches having fallen. Manures had been applied to all the manurial series plots, in accordance with the cropping scheme, and compost manure made on the Station from ashes and rubbish has been applied to Plots 8 and 9. The green manures were cut from Plot 27, and the material obtained spread as a mulch on Plots 5, 10 and 11 of the cultivation series. A total yield of 1,995 lbs. of green material was obtained at this cutting, representing about 14 lbs. of Nitrogen, equivalent to some 200 lbs. of ground nut poonac. This was obtained from a piece of waste land which would otherwise have been unprofitable. A special note on this subject appears above. Hand-weeding was done on two acres, and supplies have been 'kooked' and mulched. 95 bored trees have been removed. The crop produced by the early January rain is ripening up rapidly.

At the Tea Experiment Station, the afternoons were cloudy, and light showers were experienced; a rainfall of 3·32 inches was recorded during the week. 312 lbs. of green leaf were plucked from 1·70 acres, a yield of 183 lbs. per acre. Pruning has been completed on all plots up to No. 18, and Plots 14 and 15 pruned last year have been weeded. *Crotalaria striata* sown last week on Plot 1 has germinated well.

At the Rubber Experiment Station, Mooply, bright hot weather has been experienced during the week, the rain recorded being 0·29 inches. Daily tapping was done, and a yield of 92 lbs. of wet rubber and 20½ lbs. of wet scrap was obtained from 1,260 trees, or 0·089 lb. per tree, as compared with 0·091 lb. last week. Plot 16 still continues to give the best yield. In the seed selection plot a portion has been planted with cuttings of an Indigo, kindly supplied by Mr. Halliley, and the rest will be sown with *Tephrosia candida*, to keep down weed and prevent wash. *Tephrosia candida* in the plot under old rubber was lopped, and yielded 3,750 lbs of green material per acre. This contains about 25 lbs. of Nitrogen, equivalent to 357 lbs. of Ground Nut Poonac.

At the Rubber Experiment Station, Tenmalai, 5 inches of rain were recorded, 2·56 inches of which fell on the night of 26th. 397 trees were tapped daily, and gave a yield of 47·75 lbs. of wet rubber and 6·125 lbs. of wet scrap, or, 0·135 lb. per tree as compared with 0·19 per tree last week, but the trees were only tapped on six days, owing to rain on 27th.

(Signed) RUDOLPH D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

7—x—21.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

Sulphate of Ammonia as a Fertiliser.

Sulphate of Ammonia is used a great deal as a nitrogenous fertiliser in England, and we are often asked about its suitability for South India. It cannot be recommended for general use in South Indian soils, because they are, as a general rule, deficient in calcium carbonate content, and continued use of Sulphate of Ammonia in soils not well supplied with lime results in infertility.

Sulphate of Ammonia has a solvent action on the calcium carbonate of the soil and steadily depletes the soil of this constituent, and in South Indian soils which contain so little lime to begin with, and to which it is advisable to apply lime at frequent intervals in order to keep them alkaline or neutral, and thus a suitable medium for the activities of soil nitrifying bacteria, this depletion can be ill afforded.

Sulphate of Ammonia should, therefore, not be used unless the soil naturally contains a high lime content, or unless lime is frequently applied in large doses. This is very plainly shown by the results obtained at the Woburn Experiment Station of the Royal Agricultural Society. The following figures are quoted from the Annual Report of this Station for 1920, the crops experimented with being Wheat and Barley. The manures are applied year after year, so that the effects are cumulative.

Vide separate sheet attached.

These figures are most instructive. In the first place, it will be noticed that the two crops, Wheat and Barley, respond very differently to the same manures on the same soil. One need hardly point out that the same manurial treatment does not benefit all crops.

Sulphate of Ammonia applied by itself over a period of years results in infertility, as shown by experiment 2. If lime is added, however, the yield at once increases, showing that lime is necessary if this fertiliser is used as pointed out above. This is plainly seen in experiments 3 and 4. Barley is more sensitive to lime depletion than Wheat. The latter due to one application of lime only increased its yield with Sulphate of Ammonia from 1·6 bushels to 12·3 bushels. Insufficient Lime is still being used, however, and in the Annual Report, this is remarked, and it is stated that further heavy doses of Lime are now to be applied.

When mineral fertilisers are used alone withont nitrogen, a yield, a little better than the non-manured experiment is obtained in the case of Wheat, while double this yield is given by Barley. When nitrogen is supplied as Sulphate of Ammonia in addition to the minerals, the yield of wheat at once increases, but the yield of Barley is depressed. When lime is added, the yield of both crops at once increases, showing again the necessity for applying lime if sulphate of ammonia is used either by itself or in conjunction with other manures.

Experiments 10, 11 and 12 show the same thing over again. If the Nitrogen is supplied as Sulphate of Ammonia in alternate years, only the necessity for this plant food is reflected in the poor crop. But the addition of Sulphate of Ammonia in alternate years has done more harm than good, having depleted the soil of lime so that the superphosphate becomes ineffective. This is shown by the fact that the yield from mineral manures alone is better than when Sulphate of Ammonia is used in alternate years. Compare experiments 5 and 10. Directly Lime is added, however, a good yield is obtained.

The same effect is seen once more in experiments 13, 14 and 15, where all the manures are applied in alternate years only. The soil will not raise a crop without manure after being depleted of its lime by the Sulphate of Ammonia, and it has become infertile, as shown by a comparison with the unmanured plots. When lime is added, however, the situation is at once improved, and a good crop is raised.

Experiments 16 to 19, compared with 2, 6 and 10 show that Nitrate of Soda which does not have this lime exhaustion effect is a better form of Nitrogen to use on this Woburn Soil, and the same applies to South Indian soils for the same reason, *viz.*, the soils are naturally deficient in lime, and to apply lime enough to make Sulphate of Ammonia effective would be too expensive to be practical.

Bearing on this, a study of the lime requirement of a residual limestone soil which had been regularly manured with minerals since 1882, that is, for 35 years, made in America is of interest. It was found that where Sulphate of Ammonia had been used, the soil showed a lime requirement over twice as great as where Nitrate of Soda or dried blood had been used. Basic Slag, rock phosphate, and bone meal reduced the lime requirement of the soil. It is concluded, as a result of this investigation, that nitrogenous fertilisers which undergo a rapid nitrification like nitrate of soda, sulphate of ammonia, and dried blood materially increase the lime requirement of soils.

(Signed) RUDOLPH D. ANSTEAD,

Deputy Director of Agriculture, Planting Districts.

	—	WHEAT.					BARLEY.				
		Head Corn.	Tail corn.	Straw.			Head Corn.	Tail Corn.	Straw.		
		Bushels.	Lbs.	Cwts.	Qrs.	lbs.	Bushels.	Lbs.	Cwts.	Qrs.	lbs.
1	Unmanured. Average of two plots ...	8·45	9	6	4	9	7·75	37	6	1	14
2	Sulphate of ammonia to supply 25 lbs. ammonia	1·6	4	2	1	4	3·1	4	1	2	16
3	Sulphate of ammonia to supply 25 lbs. ammonia and 5 cwts. of lime in 1905, 1909, 1910, 1911.	6·8	12	6	3	20	4·0	20	5	0	8
4	Sulphate of ammonia to supply 25 lbs. ammonia and 2 tons of lime in 1897.	12·3	29	9	3	12	4·5	12	2	2	24
5	Minerals. 3 cwts. superphosphate. ½ cwt. sulphate potash.	9·9	8	9	2	16	15·7	74	10	1	14
6	Minerals and sulphate of ammonia to supply 25 lbs. ammonia.	16·7	12	12	0	0	4·6	18	4	3	0
7	Minerals and sulphate of ammonia and 1 ton of lime in 1905.	19·5	22	13	1	26	...	...	...	...	...
8	Minerals and sulphate of ammonia and 1 ton of lime in 1915 and 1916.	...	...	...	...	...	15·3	80	12	1	17
9	Minerals and sulphate of ammonia and 2 tons of lime in 1897 and 1912.	...	...	...	...	...	16·1	78	10	1	16
10	Minerals. Sulphate of ammonia to supply 50 lbs. ammonia in alternate years.	6·8	20	6	2	0	1·4	2	1	3	12
11	Minerals. Sulphate of ammonia to supply 50 lbs. ammonia in alternate years and 10 cwts. lime in 1905 and again in 1918.	18·4	20	11	0	4	...	...	...	...	...

12	Minerals. Sulphate of ammonia to supply 50 lbs. ammonia in alternate years and 2 tons lime in 1897 and again in 1912.	...	...	...	...	...	16·9	92	12	0	12
13	Minerals and sulphate of ammonia applied in alternate years only.	3·0	12	3	0	24	1	2	1	0	8
14	Minerals and sulphate of ammonia applied in alternate years only but with 10 cwts. of lime in 1905 and again in 1918.	18·7	20	3	2	20	...	...	...	...	...
15	Minerals and sulphate of ammonia applied in alternate years only, but with 2 tons of lime in 1897 and again in 1912.	...	...	...	...	...	10·1	32	5	3	24
16	Nitrate of soda to supply 25 lbs. ammonia ...	16·3	22	17	1	6	6·3	30	6	0	14
17	Nitrate of soda to supply 50 lbs. ammonia ...	17·2	22	19	1	0	10·8	50	9	0	10
18	Minerals and nitrate of soda to supply 25 lbs. ammonia.	19·4	16	16	2	16	17·0	59	12	3	4
19	Minerals. Nitrate of soda to supply 50 lbs. ammonia in alternate years.	13·7	52	15	3	0	19·8	68	14	0	16

SHEVAROY PLANTERS' ASSOCIATION.

PROCEEDINGS OF THE EXTRAORDINARY GENERAL MEETING OF THE SHEVAROY PLANTERS' ASSOCIATION, HELD ON THE 29TH SEPTEMBER, 1921, AT 2 P. M. AT THE VICTORIA ROOM, YERCAUD.

PRESENT.—Mesdames M. S. R. Short, C. G. Lechler, M. Cayley, Messrs. C. Dickins, S. M. Hight (Chairman), W. Rahm, A. Rahm, H. S. Dickins, C. D. Ryle, W. I. A. Lechler, V. L. Travers-Drapes (Honorary Secretary) and Rev. Father M. Capelle. Visitors—Messrs. N. M. Hight, C. L. Hight, and Capt. E. Dickins.

Before proceeding to business the Chairman proposed the following vote of condolence:—

That the members of the Shevaroy Planters' Association desire to express their condolence and sympathy towards Mrs. Eaton on the lamentable death of her husband, Mr. S. P. Eaton, of Pullangode Estate, during the Moplah rebellion. Passed, all standing.

1. Notice calling the meeting was taken as read.

2. U. P. A. S. I.—The Delegates' Report was read and adopted, with a vote of thanks from the Chair to Mr. V. L. Travers-Drapes and Mr. C. D. Ryle for representing this Association.

The Delegates' expenses of Rs. 300 was sanctioned, and the Honorary Secretary was authorised to pay the same.

3. THE PROPOSED TALUK BOARD FOR THE SHEVAROY HILLS.—Read and adopted the Report of the Sub-Committee appointed to collect data in connection with the above, and also a letter from the President, District Board, Salem, on this subject.

Proposed from the Chair that the authorities concerned be asked to concert measures with a view to making a Public Representation to Government for forming the Shevaroy Hills into an independent Taluk Board. Carried unanimously.

4. SPRAYING FOR LEAF DISEASE.—This subject was introduced by the Honorary Secretary, who explained the chief points brought out in discussion during the informal gathering of Coffee Planters held at the West End Hotel, Bangalore, on Friday the 26th August, 1921. He expressed the hope that the Shevaroy Planters would be sufficiently interested to realise the vital importance of conducting an experiment of their own, over a block of 20 or 30 acres, covering a period of 3 years. It was impossible to predict the final results of such an experiment, but from what he had heard he felt sure the advantage gained would more than compensate for the outlay. He pointed out how the cost could be met by an annual cess of annas 3 per acre for 3 years, but it would not be worth while to conduct such an experiment for a lesser period. After discussion, it was proposed by Mr. H. S. Dickins, and seconded by Mr. C. D. Ryle.

That this subject be referred to the Committee for further discussion. Carried.

5. BREACH OF CONTRACT CASES—PROCEDURE.—Mr. H. S. Dickins complained of the procedure adopted by the Sub-Magistrate of Yercaud in dealing with Breach of Contract Cases brought before him, causing loss and inconvenience to planters and contempt of the Law in the eyes of the Labour. Several other members corroborated Mr. Dickins' statements, and declared their willingness to give evidence before any commission of enquiry.

The following resolution, proposed by Mr. H. S. Dickins and seconded by Mr. V. L. Travers-Drapes was then put before the meeting:—

This Association view with alarm the procedure adopted by the present Sub-Magistrate of Yercaud, in dealing with Breach of Contract Cases brought to him by Planters. The procedure in practice heretofore was to issue non-bailable warrants, which were handed to complainants to be conveyed to Magistrates in whose jurisdiction accused resided, by Maistries or responsible persons, to point out and identify accused persons to the Police, after endorsement by Magistrates concerned, thus facilitating the duties of the Police, expediting arrest of absconders and reducing accumulation of cases pending on the file of office of issue, and was most satisfactory. The present Magistrate accepts fees for Non-Bailable warrants, and subsequently issues either Non-Bailable or Bailable warrants and summons (for the latter the fee is considerably less) to the Police, which, after long delay, are invariably returned endorsed "Accused not known here" or "Accused not here." This procedure seems unjust, against the interests of the Planting Community, and is bringing the administration of the Labour Act into contempt by the Labour.

This Association request that an enquiry be held by the Collector, or any Deputy authorised by him, concerning this matter. Carried unanimously.

6. CORRESPONDENCE.—Read letter from the Secretary, U. P. A. S. I., No. 2747, dated 1-9-21.

Resolved that this matter be placed before the Committee for discussion and consideration of Labour rates of pay prevailing in this District, and the reply asked for to be furnished thereafter.

Read letter from the Secretary, U. P. A. S. I., No. 2776, dated 2-9-21.
Do do do do. No. 3009, dated 12-9-21.

The Honorary Secretary was instructed to notify the substitution of Mr. C. D. Ryle in place of Mr. W. I. A. Lechler on the list of Promoters previously submitted, and on other points requiring reply.

Read letter from the Secretary, U. P. A. S. I., No. 2733, dated 31-8-21.
Do do do do No. 2719, dated 1-9-21.
Do do do do No. 2793, dated 2-9-21.
Do do do do No. 3293, dated 28-9-21.

Read letters from the Collector and District Superintendent of Police, Salem, dated 9-8-1921, conveying their thanks and appreciation in being elected Honorary Members of this Association.

Read letter from the President, District Board, Salem, dated 19-9-21 with reference to a projected Aerial Rope Way to the Shevaroy Hills.

Resolved that this subject be referred to the Committee for scrutiny.

(Signed) V. L. TRAVERS-DRAPES,
Honorary Secretary.

WYNAAD PLANTERS' ASSOCIATION.

PROCEEDINGS OF AN ORDINARY GENERAL MEETING, HELD AT THE MEPPADI CLUB, ON 5TH OCTOBER, 1921, AT 2 P. M.

PRESENT.—Messrs. C. E. Abbott (Chairman), B. M. Behr, S. H. Powell, T. P. Gauld, H. C. Leslie, W. G. Craig, B. D. Darkin, J. H. B. Sullivan, P. A. Naylor and J. A. Gwynne, (Honorary Secretary.)

THE LATE MR. S. P. EATON.

The Chairman said :—

"Before we begin the business of the Meeting I ask you to express our deep regret at the death of our friend and fellow Planter, Mr. Eaton, who was foully murdered by Moplahs on Pullengode Estate. He knew the danger he was in and he could have escaped. His neighbours advised him to leave. But he decided to stick to the Estate. We know now that he ought to have gone, and that the position was hopeless. But it is a mistake we must all admire. He died doing his duty, and there is no higher praise than that. I propose that we ask our Honorary Secretary to write to Mrs. Eaton and tell her of our sympathy with her and our sorrow at her great loss."

A vote of regret and sympathy was passed—all members standing.

The Proceedings of last meeting were taken as read.

BANGALORE DELEGATES' REPORT.—The Chairman read the Delegates' Report which is as follows :—

"REPORT OF DELEGATES.—You have seen the list of resolutions that were passed at the Bangalore Meeting in the *Chronicle*. It is not necessary for us to go through these in detail. The principal subjects that District Associations will have to consider as a result of the Meeting may be grouped under three heads. (1) The future of the Labour Department, (2) Inter-District agreement as to rates of coolies' pay, and (3) the question of the community participating more actively in the reformed Government of India which was focussed in Mr. Godfrey's excellent address. Owing to the unfortunate outbreak in Malabar the papers were unable to give as much space as usual to the report of the Meeting. For the same reason the Delegates were unwilling to prolong the proceedings, most of us being anxious to go back to our Districts as soon as possible. So discussion was much curtailed. I see the Planting Correspondent of the "Madras Mail" considers that the shorter these Meeting are the better, that they waste the time of our officials, that the model to be desired is that of the Ceylon Planters' Association, the delegates at whose Annual Meeting merely listen to the Chairman's address and the Secretary's Report and go home contented for another year. In fact the attitude of District Associations towards the U. P. A. S. I. staff ought to be that insisted on by the truculent ship's Captain who has his owner on board ; "What I want from you is silence, and very little of that". Incidently it may be remarked that the Committee of the C. P. A, consists of representatives of all the District Associations in the Island. Its meetings are held every two months or so, and are largely attended, so that all subjects of interest can be fully discussed. It is all a question of distances. In South India the General Committee only meet once or twice a year, and except at the Annual Meeting at Bangalore, meetings are usually only held for the discussion of some special subject.

" The future of the Labour Department was brought forward by the resolution of the Anamallai Association, who, as you know, wish to authorise the General Committee to raise the rate of subscription when and how they considered necessary. It was decided to postpone the resolution. The discussion on the Labour Department's report led to some strong criticism by Mr. Mackie and Mr. Cook, and to a very useful suggestion by Mr. J. R. Vincent to make the Department more or less self-supporting by charging fees for all services rendered. We wish to make it clear that what we refer to is Mr. Vincent's original speech, which has been summarised in the *Mail.* To the best of our recollection he calculated that the Department could earn some Rs. 1,25,000 in fees, so that the fixed subscriptions could be very much reduced, and those who did not need the Department's services would be much relieved. A Committee was appointed to go into this question and to report to the meeting. The report has been published in the *Chronicle* and as a Circular. You will have noticed that the fees to be charged are now plainly stated to be "to increase the income of the Association without increasing subscriptions." This is not what Mr. J. R. Vincent suggested. It does not much matter whether subscriptions are increased or whether subscribers who use the Department have to pay for all services rendered except for enquiries as to the status of Maistries it is proposed to advance, which Mr. Vincent proposed should be charged for. Some of us would be glad to pay for these services as well, if the payment ensured personal investigation by the European staff, instead of the enquiry merely meaning as we fear it often does, the squaring of some insufficiently paid subordinate by our Maistries. We would call your attention to Mr. Mackie's remarks on this point. The circular is down for discussion later at this Meeting. The Anamallai resolution was not put to the vote, but a commission is to be appointed to enquire into the working of the Labour Department generally, including the income and expenditure of the Association. A good deal of discussion took place about rates of coolies' pay and the possibility of inter-district agreement on the subject. It was resolved that no Association or Member of an Association should raise the pay of coolies without giving six months notice of their intention to the Labour Department. We must hope that no such increase will be found necessary. The possibility of reduction, which has been mentioned, is a more difficult problem. The present shortage of coolies and the competition that exists for any class of labour was illustrated by the protest of the Shevaroy Planters against the persistent recruiting of their Hill tribes by another District. This is a depressing comment on the efforts that have been made to extend our recruiting areas. It was resolved that such recruiting should not be allowed. The resolution about standarising pay is based on the suggestion of the South Indian Association. This, as our Honorary Secretary has reminded us, is an Association of Employers, and if they all agree to fix the rates of pay they have the power to do so.

" Mr. Godfrey's address was fully reported in the *Madras Mail*, and ought to be studied carefully. Put shortly, it is a demand that Planters and other British residents in the Mofussil should be either elected or nominated in the Council of State or the Legislative Assembly of the Government of India. The proposal may have important results.

"A strong resolution was passed about roads, impressing upon Government the necessity for the improvement of communications in planting districts, the strengthening of bridges so that they can be used for lorries, and protesting against the neglect of our former representations.

"Mr. Brock promised me to address the Traffic Superintendent, S. I. Railway, on the subject of coolyt icket credit notes. Our Honorary Secretary had, however, written on the subject, and has had a reply from the Traffic Manager.

"Mr. Richardson gave us some information on the workmen's Compensation Act, which is likely to be passed into law next year. It will not affect agricultural labour, but we shall have to insure our factory coolies against accidents. The provisions of the Factory Act are described in the Executive Committee's report.

"One of our members recently objected to having his subscription to the Benevolent Fund collected through the Value Payable system, and this was mentioned at the Meeting. It was explained that those who prefer to pay their subscriptions direct could do so.

"If there are any subjects connected with the Meeting which members wish for information, your delegates will be glad to reply to the best of their ability."

A vote of thanks to the Delegates was passed for having gone to Bangalore, and for their report.

LABOUR RATES OF PAY, ETC.—Read correspondence between the Honorary Secretary and the Honorary Secretary of the Nilgiris-Wynaad P. A. The Honorary Secretary was instructed to ask for the rates paid in the Nilgiri-Wynaad as we have already sent copies of our report to that Association on the rates paid in the Wynaad and to say that our Committee will be pleased to meet a Committee of their Association after this Association has had time to consider their figures.

S. I. R. COOLY TICKET CREDIT NOTES.—Read letter from the Deputy Traffic Manager, South Indian Railway, to the effect that cooly ticket credit notes can be issued. The Honorary Secretary was asked to inform the Secretary, U. P. A. S. I., that these arrangements can be made, and to ask him to arrange to have this done for Maistries and coolies coming to the Wynaad.

U. P. A. S. I. CIRCULAR ON MR. VINCENT'S RESOLUTION.—Read the U. P. A. S. I. Circular, and it was decided to hold a special meeting on the 19th instant to fully discuss the proposals.

THE MOPLAH REBELLION.—The meeting was strongly of the opinion that adequate protection has not been afforded to the inhabitants in the fanatical parts of the planting districts.

We wish to express our thanks to Mr. Woodhouse, our Sub-Divisional Officer, for all he has done in assisting us to tide over our difficulties in this crisis.

RICE.—It was resolved that the Collector of Malabar be approached to prohibit the export of rice from Wynaad except under permit from the Sub-Divisional Officer as the rice grown in the Wynaad generally is only sufficient to meet the requirements of the inhabitants.

EXPORT DUTY ON TEA.—The Indian Tea Association's resolution in the minute of 12th September, 1921 was read.

CORRESPONDENCE.—Letters were read regarding the stealing of tea from sample tins and the substitution of foreign matter. The Honorary Secretary was instructed to send copies of the correspondence to the Postmaster-General, and invite his early attention to the matter.

With a vote of thanks to the Chair, the meeting terminated.

(Signed) C. E. ABBOTT,
Chairman.

(Signed) J. A. GWYNNE,
Honorary Secretary.

THE NEED FOR AGRICULTURAL RESEARCH.

By a Research Chemist.

There is no need to emphasise the great and growing importance of agricultural research in world economics. Food is the first material need of mankind, and the problem of supplying it in adequate quantities for a growing population constantly pressing on present available resources is one of increasing difficulty and complexity. In terms of economic science the law of "diminishing returns" for equal expenditures of capital and labour on the land is now operating with ever-increasing intensity, and the only course to adopt is more intensive cultivation and a greater application of science, especially chemical science. Those countries like the U. S. A., the South American republics, and our own colonies are rapidly becoming more industrialised and populated and consuming an ever larger proportion of their own output of food and raw material. The older countries of Europe will thus have to seek new sources of supply—and there now seem to be very few left on this planet—or, so far as possible, supply their own needs. There is in fact, no part of the world where it is possible to follow the old happy-go-lucky methods, for the extraordinary efficiency of scientific cultivation, in which chemistry plays a leading part, is such that it is the height of folly to neglect its aid.

The incalculable benefits conferred by chemical science on the greatest and oldest of our industries—agriculture—if adequately described, would make a long story, one of the greatest and most recent achievements in this direction being the fixation of atmospheric nitrogen. The profession of agricultural research chemistry is one to be proud of, for mankind will soon depend largely on him for its daily bread, and there is probably greater scope in this direction for the chemist than in any other field. It is one to be proud of even if the emoluments are not always commensurate with its importance. In this field, more than in many others, one can experience the joy of work done, and it is particularly congenial in some of its surroundings when it takes the chemist out into the fields and the open air, and brings him into closer touch with some of the wonders and beauties of nature. The common sneer against modern science that it makes a man arrogant, full of intellectual pride, and utterly lacking in a sense of reverence is often undeserved; and the agricultural chemist at all events will be among the first to acknowledge his limitations and the smallness of his knowledge compared with the work yet to be done.

THE ROTHAMSTED STATION.

Agricultural research owes its inception largely to the enterprise and beneficence of one man—Sir John Laws—who endowed the Rothamsted Experimental Station in 1843. It was created a public trust in 1889, and it has now become one of the largest and best equipped agricultural research stations in the world, not even excepting some of the very elaborate establishments in the U. S. A. The far-sighted and wealthy business men of the U. S. A. have long realised that one of the best investments possible is scientific research, especially that connected with agriculture on which they must depend for their daily bread. Important work was also carried out at Woburn in this country, under the Royal Agricultural Society, by the late Dr. Voelcker, continued by his son, Dr. John A. Voelcker. It is rather unfortunate that this station has had to be closed, especially in view of the great wealth and influence which should be at the command of the R. A. S. E. the premier agricultural society in this country. It is in fact, a pity that the other powerful agricultural associations in Britain do not make it one of the most important parts of their policy to further the cause of science in agriculture instead of limiting their activities almost entirely to the holding of shows. The motto of the R. A. S. E., it is interesting to note, is "Practice with Science."

Fortunately the Government, and still more the Universities and several more or less private institutions and agricultural colleges throughout the country have realised the paramount importance of agricultural research. In 1909 the Development Commission, whose report of ten years' work was recently published, was appointed, and formulated a scheme of work in which the whole field of research was divided up by subjects and allotted to particular universities or institutes. By this means research was removed from direct or immediate State control; concentration of effort was insured, overlapping and duplication avoided, and each institute could work out a continuing scheme of research and deal with a particular subject as a whole.

The question whether agricultural research should be directly organised under the State or by universities and kindred bodies is of considerable interest, and was discussed by Sir Daniel Hall at some length in a paper read before the Royal Society of Arts last February. The advantages of the greater freedom and more congenial atmosphere of the university or institute as compared with a purely Government department may be enumerated under three heads: (1) The true investigator is always somewhat anarchical, in temperament, and will be far more likely to make good under the looser system of control prevailing in a university than in a Government department which is too fond of stereotyped routine, and still worse, requires a cash justification every year for the expenditure involved, such justification being required by officials who have little knowledge and less sympathy with the work of the investigator, and are in no way competent to judge of his merits, for the immediate cash return is no criterion whatever. (2) A second advantage is the opportunity for co-operation and intercourse with the workers in other and related fields, whereby the evils of over-specialisation and narrow limitation of outlook are, to some extent, mitigated. (3) There is greater opportunity for co-operation with the practical farmer, a most essential point.

CENTRAL BOARDS OF EXPERTS.

One form of organisation of research in close touch with the universities is that of the Medical Research Committee which has set up a central co-ordinating board of experts to survey the whole field, draw up a programme and allocate the work. Another somewhat different form was adopted by the Development Commissioners in the case of agricultural research, namely the setting up of separate institutes, each dealing with one great division of work. In giving the reasons for this, Sir Daniel Hall says, "Agricultural research embraces a number of subjects which have little in common. The men working upon the nutrition of animals have little to do, either in their methods or objects, with the investigators of soil problems or with the students of diseases of plants." It is not quite easy to follow him here, for one would have thought these divisions of research were intimately related. However, there is no need to cavil at this, especially since Sir Daniel points out that, although the work has been organised under several more or less independent and self-contained institutes, he admits that some form of higher co-ordination will be necessary later.

The institutes which have been inaugurated up to the present are:—(1) Soil and Nutrition of Plant, at Rothamsted; (2) Plant Pathology, at Rothamsted; (3) Animal Nutrition, at Cambridge and Aberdeen; (4) Plant-breeding, at Cambridge and Aberyst-wyth; (5) Fruit-growing, at Long Ashton, Bristol, and East Malling (Kent); (6) Dairying, at Reading; (7) Plant Physiology at the Imperial College of Science; (8) Agricultural Economics, at Oxford. Beside these there s a small experimenal station at Waltham Cross, under Rothamsted supervision, dealing with the problems of the fruit and vegetable-grower under glass. It is supported by contributions partly from the Development Commission and partly from those engaged in the industry. Diseases of animals are dealt with at a research laboratory at Addlestone. Finally, a fund of about £3,000 a year is at present available for making grants to individuals in furtherance of approved schemes of research.

The field is a very wide one to the research chemist, the work in most cases very congenial, and it offers great possibilities of the utmost importance to mankind. In a subsequent article some account of the work being done may be given. Meantime, the recent symposium on soil problems held by the Faraday Society will give some idea of the work to be done in one important branch. In a leading article on the subject on June 11, *The Times*, after indicating the serious limitations of purely *in vitro* experiments, emphasises the now well known fact that there is far more in the soil than can be at present revealed by simple chemical analysis, *e* g., beneficent or malevolent bacteria, to say nothing of vitamines or auxiomes, and that the complexity of the soil gives scope for the combined efforts of all the natural sciences.—*Chemical Age.*

THE MARKETS.

We are glad to be in a position this week to quote Messrs. Sanderson & Co's. market review of 8th September in which, speaking of Southern India Teas, it says:—The quality of the teas offered this week were again of a useful character, and prices when compared with those ruling last week showed a further advance, where the quality was equal, to the extent of ½d. per lb., and where improved quality was noticeable a distinctly larger advance was secured. The High Range again sent a nice selection of good thick liquoring teas with fair flavour, and these met with keen competition, Broken descriptions especially being sought after. Speaking broadly, the mode of manufacture now being generally adopted from this district leaves little to be desired, and if Planters will stick to their present conscientious methods they will undoubtedly maintain the popularity which they have gained so deservedly.

Southern India teas at auction fetched favourable prices of which we note particularly Periavurrai B. O. P. 1/5 to 1/5¼., B. P. 1/4¾ to 1/5., P. 11¾d., F. 1/5¾ to 1/6, and Vagavurrai, 1/7½ for B. O. P., 1/7¾ for B. P. and 1/6¼ for Fannings.

Coffee.

This market maintained a firm tone, and the small quantity offered met with good competition. Some particularly fine Jamaicas went as high as 220s. East India, middling to fine A size was quoted 105/- @ 130/-

Rubber.

The following most interesting remarks are taken from the review. Deliveries this week are satisfactory and confirm our views of a broadening demand and healthier conditions of trade. Unfortunately arrivals are still maintained on a large scale, and this exercises a depressing effect on the sentiment of the market.

Nevertheless, if we compare the arrivals and deliveries of January, 1921 with those of August, we find that in the former month the arrivals were 7,363 tons, and deliveries were 2,310 tons, say an average of 578 tons weekly. In August the arrivals were 5,688 tons, and deliveries were 3,692 tons, say 923 tons weekly average deliveries.

The average price of First Crepe in January was 1s 1½d, and present price is—say 8½d.

We have taken the comparison between January and August because January is admittedly a good month for the trade, while August is generally considered one of the slackest months. It will be agreed that the position is an improving one, and the question of enhanced prices rests largely in the hands of the producer. A steady combined restriction for even two months would undoubtedly have a very marked effect. The proof of this has already been shown in the prices ruling in London for low grades, which are fully 2d per lb. above the lowest, owing simply to the fact that a large number of producers have ceased to ship the lowest qualities. In the meantime both consumers and producers have become used to low prices, and it will naturally require something rather drastic to awake the market out of its present state of torpor.

It will be of interest to the Rubber public to know that Japan has for the first eight months of this year taken 8,000 tons.

	Tons.
Landings for the week ending 3rd September, were ...	1,240
Deliveries ,, ,, ,, ...	1,386
Stock on the 3rd September	73,086
Stock at the same period of 1920 ...	32,143

Para.

Market steady. Fine Hard quoted 1s. 0½d on spot and 1s. 1d. for forward delivery.

Cardamoms.

In auction this week 638 cases were offered, of which 156 cases sold as follows: Bold bleached Mysores 5s to 5s 4d, and medium 4s 1d to 4s 5d, medium and small 3s 1d to 3s 3d, smalls at 2s, pickings, fair to fine 1s 6d to 3s 1d. Of the lower grades Malabars and uncured Greens nothing was sold.

NOTES AND NEWS.

The Geneva Conference.

We understand that Mr. Waddington leaves England on the 20th of this month for Geneva. The Conference commences on the 26th, and the date of Mr. Waddington's return to Coimbatore is dependent upon the duration of the Conference. Last year at Washington the Conference sat for a month.

The S. I. P. Benevolent Fund.

The Planters' Benevolent Fund makes but slow progress. The following are the total collections this year from 1st April to 30th September, 1921:—

Planters' Association.	No. of Members.	Amount. Rs.	A.	P.
Anamallai	38	527	8	0
Bababudin	5	50	0	0
Central Travancore	11	150	0	0
Coorg	1	10	0	0
Kanan Devan	34	365	0	0
Mundakayam	2	160	0	0
Nilgiri	11	400	0	0
Nilgiri-Wynaad	2	25	0	0
North Mysore	1	10	0	0
Shevaroy	1	10	0	0
South Mysore	12	340	0	0
South Travancore	17	170	0	0
West Coast	5	260	0	0
Wynaad	6	440	0	0
Other Donation	1	200	0	0
Total ...	147	3,117	8	0

Lt.-Col. W. L. Crawford, D. S. O. is now a life member.

Ceylon Tea.

The following amounts of Ceylon Tea have been exported by rail *via* Talaimannar to the stations mentioned in South India :—

Ramnaad	...	579 lbs.
Trichinopoly	...	400 „
Adirampatnam	...	175 „
Ayyampet	...	1,045 „
Negapatam	...	159 „
		2,358 lbs.

These figures relate to the period, 5th September to 26th September and are taken from the "Ceylon Chamber of Commerce" Weekly Price Current.

The Indian Tea Association.

There is little of interest to South India in the minutes of the last meeting of this Association's General Committee, held at Calcutta on 27th September last, and we are not therefore publishing our usual extracts. We give below however the minute on Statistics.

"In the proceedings of the Indian Tea Association's General Committee of 21st June last reference was made to a letter from the Director of Statistics stating that they had been asked by the International Institute of Agriculture, Rome, to supply monthly information regarding the tea crop, and enquiring whether the Association could assist them by furnishing the required information. Since then the Association have been giving information on these lines with regard to North India, and they recently asked the United Planters' Association of Southern India if that Association could supply similar information regarding South India.

"A letter, dated 19th September had now been received from the United Planters' Association of Southern India in reply. It stated that the Association were already arranging to obtain certain figures from their members relating to production, but that these were being collected quarterly, not monthly. The matter would, however, be put before the Executive Committee of the Association for consideration at their next meeting. It was also stated, in reply to a further enquiry, which the General Committee had made as to the estimated crop in South India during the current year, that no information had been collected on this point.

"The Committee noted this information. They thought it would be of assistance to producers, and to the industry generally, if information regarding the crop position could be exchanged with the Planters' Association of Ceylon. They decided accordingly to inform that Association that since the beginning of the current season they had been cabling to the Indian Tea Association, London, information regarding the position of the crop, and to ask whether similar particulars had been compiled regarding the Ceylon crop with a view to the information being mutually exchanged."

Restriction.

A propos our leader this week we would draw attention to Messrs. Sanderson & Co.'s remarks published on another page regarding the effect of a steady combined restriction of even two months. This opinion of one of London's foremost broking firms is worthy of careful consideration.

LETTERS TO THE EDITOR.

(The Planters' Chronicle is not responsible for the opinions of its Correspondents).

I.

The "Old" and the "New" Schools.

Sir,—Under the above heading, I was greatly surprised to read in the correspondence columns of the P. C. of the Oct. 8th issue, protests from 3 planters against C. J's articles in the "Madras Mail".

Whatever is the planting profession coming to, when it is unable to take a skit good humouredly !!

After a surfeit of gloomy forecasts, wretched prices, threats of closing down, the sack, etc , etc, where the planting industry is concerned, I for one turn from such depressing subjects with relief, to articles of the C. J. type, which I hope will continue.

All I can say is that if the planting profession is going to have the effect on me, in years to come, of reducing my outlook on life to the extent of looking for venom and slurs in articles taking off the planter, then I think the time has come for me to leave the profession before my sense of humour is dulled to this extent. Personally I think that the numerous correspondence colleges who guarantee to teach one everything in next to no time are the real people who should feel aggrieved if anyone is to feel hurt. Anyway I should not mind betting my last rupee (if I happen to have one) that from a workman's and social point of view the estate employing C. J. is jolly glad at having a man of his type on it.

Yours faithfully,
P. D.

II.

Sir,—I regret to observe that in spite of the frequent advocacy by our Deputy Director of Agriculture of the use of lime, all mention of this important point is omitted from the treatment of root-disease in "Ancient & Modern's" letter in last week's P. C.

Further, lime wash is useful for keeping bird cages sweet, so I suggest lime might be suitable also for a "popinjay" that fouls his own nest.

Yours faithfully,
BULBUL AMIR.

III.

Sir,—We were amused with C. T's. idea of a Y. P. C. C.

We are much more amused with the Correspondence Column of the "Planters' Chronicle."

E. H. H. W.

FOR SALE.

Jackson Hybrid Coffee Seed from trees of 8th generation. Price Rs. 300/- per bushel. No orders for less than ¼ a bushel can be booked. Probable date of delivery January, 1922. Delivery on the Estate "Malishwar," Somwarpet, North Coorg.

Apply to **A. H. JACKSON,**
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PARTNERSHIP.

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Apply to :—G. F. W. ELWES,
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Katary P. O.,
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EDWIN VINCENT,
Managing Editor, *Coimbatore*. S. India.

The Planters' Chronicle.

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Edwin Vincent, Managing Editor, Coimbatore.

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THE MARKETS.

Rubber at 9¾d. and Exchange 1s. 4½d. is to-day's news, a wonderful difference from 8½d. and 1s. 5½d. respectively of a few weeks back, a difference which puts an entirely altered complexion on the Rubber position. The improvement in price would appear to be largely due to the improved statistical position, which is having its effect on the American demand. The hopeful point about the rise is the stability shown. A month back (22nd September) the *India Rubber Journal's* correspondent wrote:—

> "We have had a distinctly better market this week, and there are many sound indications of an improvement in trading. New York has been a particularly keen buyer, and very considerable business has been done. Fortunately our market has not run away, and is held down to extreme caution in view of just the suspicion that New York may have taken hold of the market in pretty much the same style as it did with cotton just recently. There is no justification for anything of this sort, but that we should advance a point or so and then stick at it, appeals as a sound commonsense view of the position.
>
> "Singapore unfortunately has not held itself in as it should have done, but galloped away at a twopenny advance, disconcerting and upsetting a good trading chance.

> "New York, on the other hand, has pulled up well in time, and stops content at 14¾ cents for spot sheets, above which she is not apparently interested."

The new uses for Rubber competition, organised by the Rubber Growers' Association, has not turned out the success it was expected to be. The prize has gone to 114 competitors who all appear to have hit on the idea of sponge rubber stuffing for sofas, chairs, etc. Still, the competition has had its uses, and, if no epoch making discovery has come of it, at least the ideas put forward should give manufacturers a line on further development in certain directions. The upholstery idea for instance may possibly have led to the suggestion by a writer in the "Times" that every sleeper should have his water bed, instead of the possession of this luxury being confined to a few invalids. Why not, as he urges; let the whole world burn its mattresses and beds of hair, straw, feathers and other horrors considered from a hygienic stand point.

Tea.

The marked improvement in this product continues, and in mail week the average at auctions for Indian Teas was 1s. 1·85d. compared with 1s. 0·75d. at the previous sale. This average is no less than 3·15d. above the average for the corresponding week in 1920. According to Messrs. Sanderson & Co., South India Teas again proved to be a very useful selection. The market was fully firm, high grown teas with flavour being especially well competed for. The Ceylon average was again higher at 1s. 4·61d. These figures may be compared with the following prices averaged by High Range and other South India Teas.

Kanniamalay Letchmi and Yellapatty	1s. 7¼d.
Periavurrai	1s. 6¾d.
Sothuparai	1s. 6½d.
Thiashola	1s. 4¾d.
Bonami	1s. 4d.

High Range teas have maintained a wonderful average for some time now, and a feature of these teas is the high prices paid for Fannings. 1s. 8¼d. to 1s 8½d. was paid for this grade from Kanniamalay, and prices from 1s. 5d. to 1s 8d. were frequent. The best quotation in the report under review was Thiashola B. O. P. 1s. 9½d. to 1s. 9¾d.

Coffee.

East India middling to fine A size was quoted 105/- @ 130/-. Locally, Messrs. Peirce Leslie & Co. report that for some months past prices have been very steady, and the new season shows signs of opening at about the same level. There are buyers of Parchment assortment with 7% triage at Rs. 60/64 per cwt. cured and delivered Coimbatore before March next.

Cardamoms.

Market steady. Fine bold bleached sorts quoted 5s. 3d. to 5s. 6d. per lb.

Pepper.

Prices were easier, but the tendency was slightly better at the close. Black Singapore quoted 4d. and white 8¾d.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT NO. 20.

ANALYTICAL FEES.—In order to remove certain anomalies, the scale of fees charged for the analysis of fertilisers made by the Government Agricultural Chemist at the Agricultural College, Coimbatore, will be modified as shown below as from 1st October, 1921. As hitherto, members of the United Planters' Association of Southern India will receive a discount of 10 per cent. on these fees.

Fees for the estimation of —	Rs.
Nitrogen alone	5
Phosphoric Acid alone	5
Potash alone	5
Calcium and Carbonic Acid	5
Nitrogen, ammoniacal and nitric ...	10
Phosphoric acid, total and citrate soluble ...	10
Nitrogen and Phosphoric acid ...	10
Nitrogen and Potash	10
Phosphoric acid and Potash ...	10
Nitrogen, ammoniacal, nitric and organic ...	15
Nitrogen, Phosphoric acid and Potash ...	15
Complete analysis. (Nitrogen, Phosphoric acid, Potash, and Calcium)	20

Thus, the fees for the analysis of fertilisers will be as follows:—

	Rs.
Poonacs, (N)	5
Blood Meal, (N)	5
Nitrolim, (N)	5
Nitrate of Soda, (N)	5
Nitrate of Lime, (N)	5
Kainit Muriate of Potash, and Sulphate of Potash, (K)	5
Limestone and Slaked Lime, (CaO & CO_2) ...	5
Fish Manure, (N & P)	10
Bone Meal, (N & P)	10
Superphosphates and Basic Slag, (P. P.) ...	10
Saltpetre, (N & K)	10
Ashes, (K & Ca)	10
Mixture of Poonac and Bone Meal, (N & P) ...	10
Mixture of Poonac and Fish. (N & P) ...	10
Mixture of Fish, Poonac and Sulphate Potash, (N P K)	15
Mixture of manure containing four elements (N K P Ca)	20
Farmyard Manure	15
Green Manure	15
Vegetable Compost	15

The fees for the analysis of soils will remain as before.

2. LIME.—In view of the high price of slaked lime, I am sometimes asked if it would not be possible to use ground limestone instead. This is largely a question of how finely it can be ground. A high degree of fineness facilitates thorough incorporation with the soil, and this is of the greatest importance when small dressings only are used. One of the reasons why slaked lime is used is that it is in the form of a very fine powder, so that it is easily incorporated with the soil. If a good limestone is chosen,

one containing a high percentage of calcium carbonate and a low percentage of magnesium carbonate, and this can be ground very finely, it could be used on many of our soils with great benefit, and if this material can be obtained more cheaply weight for weight than slaked lime it should be used.

Some experiments to rest (*sic*) the influence of the degree of fineness upon the efficiency of ground limestone are reported in a recent issue of the *Journal of the Ministry of Agriculture. (England).*

It was found that limestone of a degree of fineness below 1/100 inch benefitted the crop to a remarkable extent, but with 1/25 to 1/100 inch, the benefit was slight, while when the particles were coarser than 1/25 inch, the effect was inappreciable. Not only did particles coarser than 1/100 inch fail to give an immediate effect, but they also did not succeed in assisting the crop even several months after application.

It is thus clear that if limestone is to be used in small quantities, it must be ground so that it will pass a sieve with 100 meshes to the inch. This is quite possible, and the author quotes the analysis of a limestone in which 91 per cent passed such a sieve. At one time before the war, a ground limestone was on the market in Sylhet which would pass this test. It might be possible to put down machinery in South India to produce a ground limestone of this fineness at a cheap rate. Some experiments carried out in Coorg, some years ago, showed that a limestone could be ground cheaply, but at the time suitable machinery was not available to produce large quantities of it at a requisite degree of fineness.

3. THE EXPERIMENT STATIONS.—At the Coffee Experiment Station, 2·60 inches of rain fell during the week. Advantage of this was taken to sow some seeds of *Crotalaria semperflorens*, for trial as a green dressing. This is a big *Crotalaria*, which is highly successful as a green dressing on Tea Estates on the High Range, from which district seed was obtained for trial at the different Planting Stations. "Kooking" round supplies and mulching them has been completed throughout the Station. The crop formed by the early January rains is ripening up rapidly, and arrangements have been made for a fly picking next week.

On the Tea Experiment Station, a wet week was experienced, 4·06 inches being recorded. 206 lbs. of green leaf were plucked from 1·42 acres, a yield of 145 lbs. per acre. The plots sown with green dressings were given a preferential hand weeding. *Crotalaria striata* seed was sown broadcast in Plot 5. Work on the well, necessary to complete it, was begun, but was interfered with by the rain.

At the Rubber Experiment Station, Mooply, North-East monsoon conditions prevailed, and there was rain every day, 3·22 inches being recorded. Tapping was done daily, and a yield of 107 lbs. of wet rubber and 22 lbs. of wet scrap was obtained from 1,262 trees, or 0·102 lb per tree, as compared with 0·091 lb. last week. The special seed from Peradenya has germinated satisfactorily, and 41 pits have been planted with it, four in a pit, spacing 17 x 17. The rest of the seed has been put down in a nursery.

At the Rubber Experiment Station, Tenmalai, heavy rain was experienced, and a total of 6·41 inches gauged, the maximum fall being 2·20 inches on the 5th. 37 cases of patch canker were treated. Daily tapping was done, and a yield of 53·125 lbs. of wet rubber and 9·375 lbs. of wet scrap obtained from 395 trees, or 0·158 lb. per tree. The trees are being classified according to yield, in order to control thinning out, to get the plots as even as possible.

(Signed) RUDOLPH D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

14—x—21.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

Synthetic Rubber and Indigo.

In the course of his address at the Annual Meeting of the Society of Chemical Industry, the President, Sir William Pope, said:—

" My point in suggesting that we have erred in adopting German views concerning the methods and aims of chemical technology, without reflecting that economic conditions in Central Europe are entirely different from those which prevail in the British Empire regarded as a whole, perhaps calls for some explanation; the necessary elucidation may be furnished by considering the ultimate object of technical chemical effort. The object of all technology consists in converting raw materials of inorganic or organic origin into products of greater value, by expending upon them a certain amount of labour and a certain amount of energy. To a Central European nation labour means high wages to its population, and energy means mainly coal or water-power; only one type of technological process is thus in the main to be considered, and this is one in which certain raw materials enter the works to be handled by costly labour and to be treated by the burning of fuel, which is another form of costly labour.

We have other methods for obtaining similar results, methods which are available in many cases, but have been worked out in only a few cases. Let us consider one specific example. During the war, Germany was successful in producing India rubber in her chemical works; as converting into a works process the method for the polymerisation of a hydrocarbon of low molecular weight to give rubber, discovered as a laboratory operation by Tilden and Bouchardat many years ago, this was a fine achievement, but there is no doubt that the costs of production were high. When we consider, however, that many of the rubber plantations are in British Territory, that curtailment of output has been necessary to keep last year's production down to about 350,000 tons—all the world could absorb—and that the cost of production was in the neighbourhood of 25 cents per pound, it will be realised that the British Empire has a technical method for producing rubber which is a far sounder business proposition than the German synthetic processes. Our raw materials result from rubber plantations, the establishment of which is not costly, the labour employed is cheap tropical labour, and the energy utilised is that of the sun's heat, which does not require to be mined and transported on railway trucks. Since the world's annual consumption of rubber will certainly increase rapidly, and since our rubber plantations can already produce more than the world's present requirements, it is clear that we are in possession of a process for making India rubber, using cheap labour and gratuitous energy, which, if conducted on scientific lines will always defy competition from the chemical works of Central Europe.

It would not be fair to deprecate the installation of synthetic methods for manufacturing complex neutral products. Nature in general furnishes us with but one very complex member of any particular class of organic compounds. Thus, the numerous plants which produce indigo yield but minute proportions of other compounds of a similar type, and, in this instance, the chemical technologist has succeeded in manufacturing a whole range of valuable dyestuffs of the indigo family which do not occur among vegetable products; his efforts have to this extent been amply justified, but it is difficult to believe that synthetic indigo itself would ever have been able to compete in the market if a similar amount of scientific skill and intelligence had been devoted to the improvement of the cultivation and utilisation of the indigo plant. The work which is now being done by Armstrong, Davis and others on natural indigo may well result in the re-establishment of the Indian indigo plantations which, many decades ago, brought such a substantial contribution to the financial prosperity of our Empire.

Other similar examples are available. During the Russo-Japanese War large quantities of camphor were manufactured in the German chemical works, but this production was killed as soon as the Japanese camphor laurel started to produce after the war.

The wider recognition of the fact that chemical technology largely neglects what perhaps should be regarded as its most important mode of operation may, at no distant time, be forced upon us as an entirely economic necessity. The densely populated temperate regions of our globe will demand for their consumption and dissipation ever increasing quantities of energy, and the sources of energy in those regions – coal, oil, water-power, etc.,—are diminishing rapidly. We shall be forced to set up a scheme for transporting to our northern countries the energy so lavishly sent from the sun to tropical lands. It is by no means impossible that the day may soon come when vegetable oils, produced in the tropics, will be brought northwards for use as an economical form of fuel. With these considerations in view, it seems time for our chemical technologists to devote more attention than they have heretofore to practicable methods for utilising the surplus energy of the tropics in supplementing the waning supplies of energy available in colder climate."

(Signed) RUDOLPH D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore,
19th October, 1921.

SECRETARY'S REPORT NO. 32.

1. U. P. A. S. I. STAFF.—News has been received from Mr. C. C. Kent, who is at Home on leave, that he has to undergo a slight operation, and his application for three months extension of furlough without pay has been sanctioned by the Committee. This will mean that Mr. Kent will arrive back for duty about the end of January next.

2. TEA DISTRICTS LABOUR ASSOCIATION.—I see from the "Madras Mail" of yesterday's date that the proceedings of the Tea Districts Labour Association Committee meeting have been published by them in that paper. It contains their suggestion that South Indian Planters should start a similar Association, instead of joining the existing one. The subject will be discussed at a meeting of the General Committee next month.

3. GENERAL MYCOLOGIST.—In accordance with the unanimous decision of the Executive Committee, a letter has been addressed to the Director of Agriculture, Madras, requesting that, owing to present financial difficul-

ties, the appointment of a General Mycologist be deferred until such time as the Planting Community may be better able to afford the extra cost involved.

4. Auxiliary Force.—The Central Travancore Planters' Association sent in a request that the Adjutant of the Southern Provinces Mounted Rifles be asked to be present in Coimbatore at the time of the General Committee Meeting next month, in order to talk over the affairs of the Corps at a time when the representatives of all Districts were present. The Adjutant of that Corps has written to say that he regrets that he will not be able to come, but the Commanding Officer, Col. A. H. Morin, D. S. O , V. D., A. D. C., will endeavour to be present.

(Signed) C. H. BROCK,
Acting Secretary.

CENTRAL TRAVANCORE PLANTERS' ASSOCIATION.

Minutes of the Second Quarterly General Meeting, held at the Travellers' Bungalow, Peermade, on Saturday the 8th October, 1921, at 10 a. m.

Present —Mr. E. C. Sylvester (Chairman), Messrs. W. E. Forbes, G. S. Napier Ford, J. F. Fraser, R. E. Haslam, W. A. J. Milner, R. J. McMullin, J. Wedderspoon, H. C. Westaway, J. M. Wilkie, and A. R. St. George (Honorary Secretary). Visitor—Mr. A. H. Mead.

1. The Minutes of last Meeting were taken as read, and confirmed.

2. Correspondence.—(1) Read letter to and from Sub-Postmaster, Peermade, *re.* complaints that have lately been received. (2) Read letter from Chief Secretary to Government to Mr. J. A. Richardson *re.* timber values. (3) Read letter from Mr. J. A. Richardson *re* interview with Assistant Conservator of Forests *re* Timber values. (4) Read letter from Secretary, U. P. A. S. I. *re* subscriptions. (5) Read letter from Parry & Co., Madras, *re* one of their representatives attending C. T. P. A. Meetings. (6) Read letter from Secretary, U. P. A. S. I. *re* Periakulam-Kuruvanuth Road, and also from Mr. E. C. Sylvester. (7) Read letter from Commissioner, Devicoolam *re* the situation in Malabar. (8) Read letter from Secretary, UPASI *re* General Committee Meeting on the 28th November. The Honorary Secretary was instructed to write to the Secretary, UPASI asking that 'Roads' should be put on the Agenda, and that the Adjutaut, S. P. M. R. be asked to be present at the Meeting.

3. Bangalore Delegates' Report.—This was read, and a hearty vote of thanks was proposed from the chair, and seconded by Mr. Milner. Carried.

4. Election of Sri Mulam Delegate.—Proposed by Mr. Wedderspoon and seconded by Mr. Ford :—"That Mr. Tait be asked to represent us at the forthcoming Assembly." Carried.

5. Labour Department. (1) Proposed by Mr. J. M. Wilkie and seconded by Mr. E. C. Sylvester :—"That the Koilpatty Taluk of the Tinnevelly District be transferred from Srivilliputtur Division to the Palamcottah Division, provided the Superintendent, Palamcottah is agreeable." Carried. (2). Proposed by Mr. G. S. N. Ford, and seconded by Mr. E. C. Sylvester :—"That the Labour Department be asked to appoint an extra Agent in the Cumbum Valley to organise the permanent and Varum labour

in the Valley." Carried. (3). The resolution passed at the UPASI General Meeting in August, *viz*:—"That the suggestions put forward by Mr. Vincent and the modifications thereof recommended by the Committee be referred to District Associations for discussion, and with a request to report before the 30th November" was thoroughly discussed, and the Honorary Secretary was instructed to reply, *viz.*, that the Meeting was in favour of the modifications as recommended by the Committee.

6. INDIA AUXILIARY FORCE.—The Chairman informed the Meeting that he had hoped the Adjutant, S. P. M. R. would be present at the Meeting, but he had unexpectedly been recalled to his unit. The Honorary Secretary was instructed to write and ask members if enrolment forms had been filled in and sent, and if not, to request that they be sent in to him without delay.

7. DATE AND PLACE OF NEXT MEETING.—It was decided to hold the the 3rd Quarterly General Meeting on Saturday, 7th January, 1922, at the Travellers' Bungalow, Peermade.

8. ANY OTHER BUSINESS.—(1) Proposed by Mr. E. C. Sylvester and seconded by Mr. W. A. J. Milner:—"That Mr. T. Cameron be appointed an Honorary Member of this Association." Carried. (2) Proposed by Mr. H. C. Westaway, and seconded by Mr. J. F. Fraser that the following telegram be sent to His Highness the Maharaja of Travancore. Carried.

> "The Central Travancore Planters' Association in General Meeting respectfully congratulates His Highness the Maharaja on attaining his 64th birthday."

With a vote of thanks to the Chair, the Meeting terminated.

(Signed) E. C. SYLVESTER,
Chairman.

(Signed) A. R. ST. GEORGE,
Honorary Secretary.

ANAMALLAI PLANTERS' ASSOCIATION.

MINUTES OF AN EXTRAORDINARY GENERAL MEETING OF THE ANAMALLAI PLANTERS' ASSOCIATION, HELD AT THE ANAMALLAI CLUB, ON TUESDAY THE 4TH OCTOBER, 1921, AT 11-0 A. M.

PRESENT.—Messrs. J. Hatton Robinson, (Chairman), A. C. Cotton, E. W. Simcock, E. N. House, S. Sladden, A. V. Danagher, D. Cooper, C. W. R. Tyler, E. Hardy, J. C. Robertson, E. H. Francis, and J. E. Sampson, (Honorary Secretary.)

The Honorary Secretary read notice of the Meeting.

MINUTES.—The following Minutes were taken as read, and confirmed:—

1. Minutes of the Extraordinary General Meeting, held on the 5th July, 1921, and

2. Minutes of the Extraordinary Meeting of the General Committee, held on the 9th August, 1921.

TRANSPORT.—Read Minutes of the Meeting of the Transport Committee held this day. The Chairman pointed out that the Committee had refrained from bringing forward any figures as to running costs, etc., as sider it advisable to obtain expert advice upon this point, before placing the scheme before the Managing Agents or various concerns interested.

The meeting was in agreement with the Committee's recommendations as regards placing the whole matter before competent consulting engineers, payment of fees for advice to be made from Association Funds, and to be considered a first call upon the Transport Company, if and when formed,

The Minutes of the above mentioned meeting were accordingly confirmed.

INCORPORATION.—Read letter from the Secretary, U. P. A. S. I., No. 3006, of the 12th September, 1921, and the Honorary Secretary's reply, dated the 16th idem. The Honorary Secretary was directed to ascertain if it was necessary that the final copies of the Articles and Memorandum of Association should be signed before a Magistrate or Registrar.

ELECTION OF MEMBERS.—The following were elected Members of the Association:—

Mr. E. H. Francis, proposed by Mr. Sampson, and seconded by Mr. Robertson, and

Mr. J. C. Robertson, proposed by Mr. Sladden, and seconded by Mr. Hardy.

TITLE-DEEDS WITH SPECIAL REFERENCE TO QUARRIES.—Read further correspondence on this matter from the Secretary, U. P. A. S. I., and that Association's legal advisers. The matter was discussed in Committee, and Mr. Simcock pointed out that, whereas compensation had been paid to other estates, it had been refused in his case. It was proposed that the Honorary Secretary refer the matter to the Planting Member of Council for his assistance. Carried, with one dissentient.

MR. J. R. VINCENT'S SCHEME WITH REFERENCE TO THE LABOUR DEPARTMENT.—The meeting discussed the scheme, in Committee, and arrived at the following conclusions:—

Clause "a":—The Association suggest a single registration fee of Re. 1 per annum, for all registered maistries or contractors, to include all items under this clause.

The Association were in agreement with the recommendations of the Special Committee of the U. P. A. S. I., as regards clauses "b," "c," "d," "e" and "f."

It was agreed the extra income to be derived from the scheme would be approximately as follows:—

		Rs.	a.	p.
Clause "b,"	...	12,000	0	0
Clause "d," 40 cases at 25	...	1,000	0	0
Clause "e,"	...	7,500	0	0
Clause "f,"	...	3,500	0	0
		Rs. 24,000	0	0

plus income to be derived from clause "a" at present unknown.

The Rs. 24,000, above mentioned, would be almost sufficient to open the Chingleput Division: direct recruiting should be made self-supporting, and consequently not require the Rs. 25,000 budgetted for.

With reference to the third question asked by the Committee in their recommendations on this scheme, the following resolution was proposed by Mr. Hardy, seconded by Mr. House, and carried unanimously:—

"That Article 13 (b) of the Articles of Association of the United Planters' Association of Southern India be altered to read as follows: —

> 'To raise or reduce the rates of subscription payable to the Association of any particular product, or of any District or Districts for any year or portion of year, by such sums as may be considered necessary by the General Committee. Such increase shall not be imposed except by a resolution passed by a majority of at least three-fourths of the members of the General Committee, present and voting.'"

REPORT OF DELEGATES TO U. P. A. S. I. ANNUAL MEETING: — Mr. Simcock read the Delegates' report as follows: —

"Gentlemen, Your delegates attended the Twenty-eighth Annual General Meeting of the United Planters' Association of Southern India, held at the Mayo Hall, Bangalore, during the week, August 22nd to August 25th, 1921.

"Their chief business was to bring forward this Association's resolution with regard to the amendment of either Article 6 (a), or 13 (b), in the U. P. A. S. I. Articles of Association, so as to admit of the General Committee of the U. P. A. S. I. being empowered to raise the rates of subscription when, and how they consider necessary.

"The reductions on the Labour Department in the late budget of the U. P. A. S. I., were considerable—but it was only by such drastic reduction that the Executive were able to finance the other activities of the Association.

"Your Association viewed this curtailment of expenditure on the Labour Department with alarm, and, as a result, brought forward its resolution chiefly with the object of bringing about a general discussion on the finance of the U P. A. S. I., and of the Labour Department in particular.

"Although, as you are already aware, your Delegates withdrew your resolution, it achieved the desired effect—for the direct outcome of it was Mr. J. R. Vincent's excellent speech, and the suggestions he made for increasing the income of the Labour Department without actually increasing acreage cesses.

"During the meeting a Special Committee consisting of the Chairman, Sir Fairless Barber, and Messrs. Mackie and Lake, was appointed to look into and report on Mr. Vincent's scheme—and, this, together with the Committee's recommendations thereon, has now been circulated to all District Associations for their opinion.

"Further, the Committee recommended that a commission be appointed to enquire into the working of the Labour Department generally, and into the income and expenditure of the Association—and you will be glad to know that this Commission is likely to get to work at an early date. We would like to mention that your resolution did not meet with the support of several Associations owing to it being indefinite; and, chiefly because of this, Delegates were instructed to vote against it.

"We wish to tender our thanks to the Nilgiri Delegates for seconding our resolution, and for their able support of same."

"COMMUNICATIONS.—Under this heading we seconded Mr. Weld-Downing's resolution to the effect 'that the U. P. A. S. I. again impress upon Government the urgent necessity now existing for improvement of communications into Planting Districts, (including the strengthening of viaducts), to enable them to carry motor lorry traffic' pointing out that this Association had now before it a scheme for running a motor transport service, but before it was possible to start this service, the bridges and culverts on the Ghaut Road would have to be strengthened, and the corners widened, "STATISTICS.—We seconded the resolution for legislation to make the rendering of statistics compulsory.

" AMENDMENT OF LABOUR RULES.—We brought forward a resolution to the effect ' that the Executive Committee be requested to frame a rule that will cover cases of absconding maistries working on other estates as coolies.' This was seconded by the Nilgiris, and carried.

" UPASI BUYING AGENCY:—You will note that members can now send orders direct to most of the firms giving discounts, and this does away with this Association's chief objection of having to send orders through the Agency.

" GANJAM LABOUR.—No resolution came up under this heading.

"LABOUR RATES OF PAY.—A resolution on this subject was passed, and this District has already been asked to send in returns to the U. P. A. S. I., to be forwarded to the South Indian Association.

" RICE ISSUE TO COOLIES.—No resolution was passed on this, and we were surprised that the subject did not receive more attention.

" NILGIRI-WYNAAD PROPOSAL RE-REDUCTION OF RATES, ETC.—We were not approached by the Delegates from the Nilgiri-Wynaad to discuss this subject, so that, as far as we are aware, the matter must have fallen through."

(Signed) J. HATTON ROBINSON.
(„) E. W. SIMCOCK.

The Delegates expressed their willingness to answer any question put to them by the meeting.

Mr. Cotton, seconded by Mr. Hardy, proposed that the report be adopted, and the Delegates accorded a very hearty vote of thanks for their able representation of the Association at Bangalore. Carried unanimously.

Mr. Hardy proposed, seconded by Mr. Cooper, that a sum of Rs. 500 be paid to the Delegates from Association funds towards expenses incurred in attending the meeting. Carried unanimously.

INTER-DISTRICT SPORTS COMMITTEE.—Read letter from the Honorary Secretary, Inter-District Sports Committee, dated the 7th September, 1921. The Honorary Secretary was directed to forward copies of the letter to all members, enquiring who is willing to play : replies to be referred to the General Committee later.

CHATRAMS.—The Honorary Secretary advised the meeting that Mr. J. O. K. Walsh had kindly consented to undertake the upkeep of the Chatram at mile 14·6, and had already had the building and surroundings cleaned up.

Mr. Tyler kindly agreed to undertake the necessary upkeep of the Chatram at mile 21·4.

The meeting agreed to allow expenditure not exceeding Rs. 5 per month for each Chatram, expenditure over this sum to be referred to the General Committee.

DISTRICT BOARD.—Read letter from Mr. J. A. Richardson, Planting Member of Legislative Council, dated the 8th August last, and enclosures.

It was proposed by Mr. Cotton, and seconded by Mr. Hardy, that the matter be dealt with by the General Committee at a convenient date. Carried unanimously.

LICENSE FOR STAMP VENDOR FOR COURT FEE STAMPS.—The Honorary Secretary agreed to apply for a license, and to advise Members when stamps were available at his office for sale.

ROADS.—Anamallai Ghaut Road:—The following resolution, proposed by Mr. Cotton, and seconded by Mr. Sampson, was carried unanimously:—

"That this Association records and wishes to convey to the Executive Engineer, Coimbatore, its appreciation of the great improvement in the Ghaut Road during the last year."

SHANDIES:—It was agreed that certain Malayandipatnam contractors be allowed to make use of these for one month as a trial. The Moplah who had previously requested and obtained permission to use the shandies, was to be allowed to come provided he obtained a certificate as to good character from a Magistrate or the Collector.

PAYMENT OF SUBSCRIPTIONS.—The Honorary Secretary requested payment of subscriptions from certain estates from which same were due.

PLANTERS' BENEVOLENT FUND.—In reply to Mr. Tyler's suggestion that this Association should request assistance from the Fund for Mrs. Eaton, the Chairman informed the meeting that the Chairman of the U. P. A. S. I., was sending out an appeal, and he felt sure that, when the same was received by members of this Association that they would give it their hearty support.

CORRESPONDENCE.—Rates for plucking tea:—Read letter from the Manager of Karaimallai Estate, dated the 22nd September, 1921, stating that he found it necessary to increase the rate for plucking done by men. Considerable discussion took place, and it was left to the Committee to frame a special rule with regard to this matter, and place same before the next General Meeting.

Read letter from the Secretary, U. P. A. S. I., No. 3298 of the 28th September, 1921, giving notice of a Meeting of the General Committee and an Extraordinary General Meeting of the U. P. A. S. I., to be held on the 28th November next.

PAPER ON THE TABLE.—The Rubber Producers' Corporation, Ltd.; scheme referred to in Circular by the Rubber Growers' Association, (Inc.), dated the 15th July, 1921.

With a vote of thanks to the Chair, the meeting terminated.

(Signed) J. HATTON ROBINSON,

Chairman.

(„) J. E. SAMPSON,

Honorary Secretary.

RESTRICTION PROPOSALS IN THE STRAITS.

At the last meeting of the Straits Settlements Legislative Council, the Governor made a lengthy statement, reviewing the history of the proposed legislation as to some form of restriction in regard to rubber. In the course of his statement, the Governor said:—

On September 22nd a telegram was sent without the knowledge of the Government by the local committee of the Rubber Growers' Association to the Rubber Growers' Association in London, stating that Government were prepared to pass legislation if the general public were in favour of it. As soon as Government heard that this telegram had been sent they requested, on October 31st, that the false impression should be corrected, but this was not done until December, when the Government insisted on the matter being put right and themselves caused the true state of the case to be explained to the Rubber Growers' Association in London. The facts in this matter have long been public property, having appeared in full in the "Malay Mail" on Thursday, March 17th, 1921, and other papers. I have never been able to discover upon whom lies the true responsibility for the sending of the misleading telegram, for the delay in correcting it and for the consequent misunderstanding, but of one thing I am certain, and that is that no responsibility whatever rests either upon the Government or upon me personally. On December 16th, I cabled to the Secretary of State explaining the misunderstanding, and stating that the position taken up by Government was that they were not in favour of legislation, but that if the authorised representatives of the rubber industry in Malaya and in England agreed and submitted definite suggestions for legislative restriction they would be considered. In February of this year a committee of representatives of the planting industry, with the Hon. Mr. W, Duncan, as its Chairman, submitted a draft bill for the restriction of the production of rubber in Malaya and its exportation therefrom for a definite period subject to certain prescribed conditions. I telegraphed to the Secretary of State, giving a brief outline of the provisions of the draft bill, and stating that they had been approved at a public meeting of seventy representatives of the planting industry, and had the approval of the Unofficial Members of the Legislative Council of the Straits Settlements and the Federal Council of the Federated Malay States. I expressed the opinion that, if the local request were unanimous, and if the Rubber Growers' Association in London pressed for legislation, it would be difficult to refuse it; but I said that I was not satisfied that the request by the local industry was unanimous, or that it would be supported by the community generally, and that I proposed, therefore, that Government should publish the draft bill in the local newspapers for comment, with a notification that any association, company or individual objecting to the bill was invited to record his protest. I also suggested to the Secretary of State that, if the principle of restriction of production and report were considered undesirable

A HIGH EXCISE TAX PAYABLE BY THE PRODUCER

on all rubber above the percentage of his standard production might meet the case. On March 8th, I met, at Singapore a deputation of planters and merchants purporting to represent the unanimous opinion of the rubber planting industry. The deputation asked that the draft bill already mentioned should be considered as a measure put forward by the planting industry for acceptance by the Government, and gazetted for public information, and expression of opposition if any. They urged that this would not bind the Government to any action. The members of the deputation expressed themselves as being prepared to agree to an excise duty on any rubber in excess of a restricted quantity in lieu of an absolute prohibition of output in excess of a restricted quantity, if such a system were preferred by the Government. The purport of the deputation's representations was telegraphed to the Secretary of State the same day. The Secretary of State was not able to approve of the draft bill being published by Government, but, as is known, publicity was given to the proposals by those who had put forward the scheme. On April 17th, a meeting of representatives of the rubber growing industry, held at Kuala Lumpur, passed a unanimous resolution in favour of the introduction of legislation by the F. M. S. and the S. S. on the lines of the draft bill, which had been submitted to the Government. I telegraphed the resolution verbatim to the Secretary of State, and I expressed the opinion that sufficient reason had been shewn to justify the publication by the Government of the draft bill for the purpose of inviting public criticism. In later telegrams, I informed the Secretary of State that the Unofficial Members of the Federal Council supported publication of the draft bill, and were unanimously in favour of compulsory restriction; and that the question of legislation for restriction had been raised by the Unofficial Members of the Legislative Council of the Straits Settlements, who urged the necessity for an early decision. Up to this point my correspondence with the Secretary of State dealt with the proposition that Malaya by itself should pass restrictive legislation. Throughout the correspondence my attitude was as follows:—(1) I felt sure that before the Secretary of State would consider such restrictive legislation he would have to be satisfied—(a), that the rubber industry of Malaya, as a whole, agreed as to what it wanted done; (b) that the community of Malaya, as a whole, concurred in what the industry asked. In the second place I felt that, even if Malaya spoke with a unanimous voice, the interests involved, commercial, financial and political, were so manifold and so involved that the last word would rest with the Imperial Government at Home and not with the local Government here. So far as my personal opinion is concerned, I was

NOT CONVINCED THAT RESTRICTIVE LEGISLATION BY MALAYA ALONE WAS DESIRABLE,

but I made it clear to the Secretary of State that, owing to my short residence in Malaya, I did not feel justified in rejecting the advice of men of far greater experience in the country than my own, or in pressing my personal opinion with the authority which a Governor is normally expected to exercise in advising the Secretary of State. As has been well known since April last, the Secretary of State did not see his way to agree to restrictive legislation. This decision of his was arrived at after he had considered the advice of senior high officers of this Government, both present and past, and had been kept fully informed of the views held by the representatives of the rubber industry here and at Home. A new chapter opens with the negotiations entered into between the representatives of the rubber industry here and in Java, with the view to arriving at concerted action in the principal rubber producing countries. In July, I telegraphed to the Secretary of State to the effect that a deputation representing the rubber industry of Malaya had proceeded to Java in order to confer with the representatives of the industry there. Upon the return of the deputation from Java, they submitted to me the four points upon which they had arrived at an

AGREEMENT WITH THE REPRESENTATIVES OF THE NETHERLANDS EAST INDIES.

They also informed me that, under the scheme which they contemplated, which involved legislation not for restriction of output but for restriction of export under a system of export licenses, no financial assistance from the Government was asked. Full details as to these four points were published in the Press. I telegraphed them in full to the Secretary of State, with some particulars of the scheme under contemplation, and I recommended that, in the event of the Government of Netherlands East Indies being prepared to legislate, similar legislation should be passed by the Straits Settlements, Federated Malay States, and Unfederated Malay States, provided that the Government of Ceylon was prepared to take the same action. I expressed the opinion that any scheme of co-operation between Malaya and the Netherlands East Indies and Ceylon for the restriction of the exportation of rubber would improve the position, which otherwise must, I thought, get worse. The Secretary of State has not seen his way to agree to this proposal.

THE FISCAL COMMISSION.

The following resolution of the Government of India in the Department of Commerce (No. 5910, dated the 7th October, 1921), published in the *Gazette of India Extraordinary* of the 7th October, 1921:—With the approval of His Majesty's Secretary of State for India, the Government of India have decided to appoint a **Fiscal Commission** with the following terms of reference, "**to examine**, with reference to all the interests concerned, the **Tariff Policy of Government of India**, including the question of the desirability of adopting the principle of Imperial Preference, and to make recommendations." The following gentlemen have agreed to serve on the Commission:—

PRESIDENT.

The Hon'ble Sir Ibrahim Rahimtulla, Kt., C. I. E.

VICE-PRESIDENT.

J. M. Keynes, Esq., M. A., C. B., Fellow of King's College, Cambridge.

MEMBERS.

T. V. Seshagiri Ayyar, Esq., M. L. A.

Ghaneshyamdas Birla, Esq., M. L. C., of Messrs. Birla Brothers, Limited, Calcutta.

J. C. Coyajee, Esq., B. A., L. L. B., Professor of Economics, Presidency College, Calcutta.

The Hon'ble Sir Manakjee Byramjee Dadabhoy, Kt., C. I. E.

Jamnadas Dwarkadas, Esq., M. L. A.

The Hon'ble Sir Edgar Holberton, Kt., C.B.E.

R. A. Mant, Esq., C.S.I., I.C.S.

Narottam Morarji. Esq., of Messrs. Morarji Goculdas and Company, Bombay.

C. W. Rhodes, Esq., C.B.E., M.L.A., of Messrs. Hoare Miller and Company, Calcutta.

Sir. M. de P. Webb, Kt., C.I.E., C.B.E.

(The Vice-President will arrive in India about the beginning of February.)

Mr. H. G. Haig, I.C.S., has been appointed Secretary to the Commission, and Mr. E. F. Rogers, Officer on Special Duty in this Department, will be Assistant Secretary. The Commission will assemble at Bombay in the first half of November, and will visit the more important commercial and industrial centres of India for the purpose of taking oral evidence, completing this part of its work probably early in March, 1922. It will submit its report to the Government of India as soon thereafter as possible. Various Associations and individuals will be invited, either directly by the Commission or through Local Governments, to forward their views in writing. Other associations or individuals wishing to represent their views should apply to the Secretary, Indian Fiscal Commission, Simla, who will furnish them with a list of questions to which answers are required. The Commission will decide after a perusal of the written replies which witnesses will be examined orally. The Government of India trust that Local Governments and Administrations will afford the Commission all the assistance which it may require, and will comply with any request for information which may be addressed to them by it.

LETTERS TO THE EDITOR.

(The Planters' Chronicle is not responsible for the opinions of its Correspondents).

The "Old" and the "New" Schools.

Dear Sir,—I have to thank you, and through you, your three last week's correspondents, for the splendid advertisement my Y. P. C. C. has received in your paper.

I note that, until what you so aptly term the "combined attack" reached you, you saw in my article—as I am sure all *sane-minded* readers of it saw—"nothing more than a skit on the P. D."

I might have replied to the "attack":—

(1) if "Ancient and Modern's" letter, as printed, did not contain two palpable and ludicrous falsehoods, one of which he parenthetically (and very adroitly) foists on me;

(2) if "Old Planter" had a sense of humour, untouched by the "venom" which exists only in his own jaundiced imagination ; and

(3) if "Anti N. C. O." did not himself most illogically adopt the rôle which he quite gratuitously bestows on me.

Yours faithfully,
C. J.

[We do not propose publishing any further letters on this subject. ED.—P. C.]

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore,

26th October, 1921.

SECRETARY'S REPORT NO. 33.

1. INCORPORATION OF DISTRICT ASSOCIATIONS.—Memorandum and Articles of Association have been forwarded to the undermentioned District Associations for final signature prior to Registration:—

Anamallai Planters' Association

Nilgiri-Wynaad do do

Shevaroy do do

Wynaad do do

2. TUTICORIN HARBOUR COMMITTEE.—The Government of Madras have appointed a Committee to enquire into everything in connection with the Tuticorin Harbour Scheme, and the Secretary, U. P. A. S. I., has been

invited to serve on this Committee. The Committee meets at Tuticorin on the 7th of November, so, the Secretary will leave Coimbatore on the 5th idem to be present at the Meeting.

3. EXTRAORDINARY GENERAL MEETING.—The following additional Special Resolution has been notified by the Anamallai Planters' Association for inclusion on the Agenda, and all Members have been advised accordingly :—

"That Article 13-b, of the Articles of Association of the United Planters' Association of Southern India be altered to read as follows:—

> ' "To raise or reduce the rates of subscription payable to the Association of any particular product or any District or Districts for any year or portion of year by such sums as may be considered necessary by the General Committee. Such increase shall not be imposed except by a resolution passed by a majority of at least three-fourths of the members of the General Committee present and voting' "

4. LABOUR COMMISSSION.—The Executive Committee have obtained the services of the following gentlemen to serve on the Commission :—

Messrs. J. R. Vincent, W. A. Lee, and R. Fowke. The Members of the Commission are meeting together on the 29th instant to formulate their programme, etc., and all District Associations and Labour Superintendents will be notified as soon as possible after that date the tour programme of the Commission.

5. PUBLICITY BUREAU.—After having considered the pamphlet which, as resolved at the Annual General Meeting, was submitted to them for favour of publication, the Publicity Board have written to say that they regret that they cannot see their way to publishing the pamphlet submitted to them.

6. INDIAN FISCAL COMMISSION.—The Secretary of this Commission has forwarded copies of list of questions for witnesses giving evidence for the Commission. Two copies each have been circulated to all District Associations and one each to the members of the Executive Committee, and it is requested that replies to the same be forwarded to the Secretary, U. P. A. S. I., at the earliest possible date.

The Secretary, U. P. A. S. I., will leave Head-quarters on the 28th instant to attend the Meeting of the Rubber Growers' Association, Local Branch, and of the Labour Commission at Cochin.

(Signed) C. H. BROCK,
Acting Secretary, U. P. A. S. I.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT No 21.

The Deputy Director of Agriculture, Planting Districts, will leave Coimbatore on 28th to attend the Annual Meeting of the Rubber Growers' Association to be held at Cochin on 29th, and return to headquarters on 30th. Mr. Anstead proposes to visit the Experiment Stations at Mooply, Peermade and Tenmalai, next month, and will be passing through the following districts :—Mooply Valley, Mundakayam, Quilon and possibly Poonmudi, before he reaches Tenmalai.

2 THE EXPERIMENT STATIONS.—At the Coffee Experiment Station, 2·02 inches of rain were recorded, 1·60 inches of which fell in one heavy shower lasting about six hours. Fly picking has been begun and completed over 7 acres, and about 105 lbs. of ripe cherry gathered. This is the crop formed as a result of the early rains in January. Arrangements are being made this year to carry out a probable error experiment, by dividing the non-manured control plots into a number of small blocks and picking each separately. Seeds of *Crotalaria semperflorens* sent for trial as a green dressing have germinated well.

At the Tea Experiment Station, rain was experienced almost every day, and a total of 2·73 inches was recorded. 553 lbs of green leaf were plucked from 3·96 acres, a yield of 139·6 lbs. per acre. Wood Ashes from Stagbrook factory are being applied to Plot 22. This is in connection with Mosquito Blight, to ascertain whether heavy doses of Potash supplied in one Plot by Wood Ashes, and in another by Muriate of Potash will have any beneficial effect. Helopeltis has almost disappeared from the Station now, though still troublesome in neighbouring Estates.

At the Rubber Experiment Station, Mooply, bright weather, on the whole, was experienced during the week, 1·87 inches of rain being recorded. Cases of pink disease are found from time to time, and these are promptly dealt with. Daily tapping was done, and a yield of 124 lbs. of wet sheet and 22·5 lbs. of wet scrap was obtained from 1,262 trees, or 0·116 lb. per tree, as compared with 0·102 lb. last week. In Plot 15, a change over to the other side was made in accordance with a tapping experiment to test a local method. In the seed selection plot, the Indigo cuttings have struck. Tephrosia seeds, kindly supplied by Mr. Walmesley, have been sown in the rest of the plot. The first thinning of the plants has been done, in overcrowded pits one plant, the weakest, has been removed.

At the Rubber Experiment Station, Tenmalai, a dry week was experienced, only half an inch of rain being gauged. Patch canker is still prevalent, and 19 cases were dealt with. Daily tapping was done on 395 trees, and 51·56 lbs. of wet sheet and 6·75 lbs. of wet scrap were obtained, a yield of 0·148 lb. per tree, as compared with 0·158 lb. last week. A mixture of tar and tallow 2·1 is being applied to the tapped surface above the cut, to protect it from fungoid attack.

(Signed) RUDOLPH. D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

20—x—21.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

(INCORPORATED.)

NOTICE is hereby given that an EXTRAORDINARY GENERAL MEETING of the Members of the above mentioned Association will be held at the Club, Coimbatore, on Monday the 28th day of November, 1921 commencing at 10 o'clock in the forenoon, for the purpose of considering the Special Resolutions in the Agenda given hereunder.

By order of the Executive Committee.
(Signed) C. H. BROCK,
Acting Secretary.

Coimbatore,
22nd October, 1921.

AGENDA.

1. Notice calling the Meeting.
2. Article of Association No. 7.

The following resolution passed at the Annual General Meeting has to be repassed as a Special Resolution, in order to comply with Sections 20 and 81 of the Indian Companies Act.

"With reference to Article 7 on the Articles of Association, that instead of the dates, 31st day of June, 30th day of September, 31st day of December, and 31st day of March, the following be substituted :—1st April, 1st July, 1st October, and 1st January."

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

(INCORPORATED.)

NOTICE is hereby given that a MEETING of the GENERAL COMMITTEE of the above mentioned Association will be held at the Club, Coimbatore, on Monday the 28th day of November, 1921, at 10-30 o'clock in the forenoon.

By order of the Executive Committee
(Signed) C. H. BROCK,
Acting Secretary.

Coimbatore,
22nd October, 1921.

AGENDA.

1. Notice of Meeting
2. Proceedings of last meeting
3. Proposed Labour Rules
4. The Labour Commission
5. Roads.
6. Subscriptions to U. P. A. S. I.
7. Incorporation of District Associations
8. Articles of Association
9. Date of next Meeting

MUNDAKAYAM PLANTERS' ASSOCIATION.

MINUTES OF AN EXTRAORDINARY GENERAL MEETING OF THE ABOVE ASSOCIATION, HELD ON SATURDAY THE 8TH OCTOBER IN THE MUNDAKAYAM CLUB AT 2 P. M.

PRESENT.—Messrs. J. R. Vincent, Chairman ; H. R. Carson Parker ; R. P. Stott ; M. F. Shore ; F. G. Millar ; W. M. Stantan ; R. Harley ; J. J. Murphy ; H. Ashplant ; T. W. H. Fitchett ; A. B. H. Dickson ; G. A. Brooke ; C. L. McLean ; and F. H. Moulton, Honorary Secretary.

The Honorary Secretary read the notice calling the meeting.

1. U. P. A. S. I. DELEGATE'S REPORT.—Mr. Vincent read his report on the Annual General Meeting of the U. P. A. S. I. Mr. Millar proposed and Mr. Parker seconded :—"That the report be adopted." This was carried with a hearty vote of thanks to Mr. Vincent for his representation.

2. COOLY CHATTRAM.—It was proposed by Mr. Millar and seconded by Mr. Shore :—"That the watcher be allowed to build a temporary verandah to his house if he wishes, and that he be allowed Rs. 5 for so doing." Carried.

3. SRI MULAM ELECTION OF DELEGATE.—It was proposed by Mr. Moulton and seconded by Mr. Millar :—"That Mr. Vincent be asked to attend." Carried. Mr. Vincent kindly consented to do so.

4. INCORPORATION.—After discussion, Mr. Murphy proposed :—"That Incorporation be delayed till January, 1922, when the matter can again come forward for discussion." This was seconded by Mr. McLean, and carried.

5. SUBSCRIPTIONS TO THE U. P. A. S. I.—Mr. Harley proposed and Mr. Murphy seconded :—"That, in view of the position of the Rubber industry, the Upasi be asked to reduce the subscriptions payable by rubber acreages from the 1st April, 1922 to a nominal sum, until such time as the present depression passes." Carried.

6. S. P. M. R.—The Honorary Secretary read a letter from Capt. Shore asking the Association to advance the amount of expenses incurred in bringing arms from Cochin. Mr. McLean proposed :—"That the P. A. advance the amount until such time as Capt. Shore is able to claim on Government." This was seconded by Mr. Parker and carried. Mr. Murphy proposed a hearty vote of thanks to Messrs. Shore and Brooke for the services they had rendered. This was seconded by Mr. Fitchett, and carried.

7. U. P. A. S. I. MEETING OF NOVEMBER 28TH.—The meeting decided to place on the Agenda the subject of Subscriptions to the U. P. A. S. I.

Mr. Murphy proposed and Mr. Millar seconded :—"That Mr. Vincent be asked to attend." This was carried, and Mr. Vincent consented to do so.

8. LABOUR DEPARTMENT.—The meeting discussed the scheme for increasing the income of the Labour Department as proposed by Mr. Vincent at the U. P. A. S. I. Annual Meeting, and were of opinion that:—

1 they should support Mr. Vincent's proposals as amended by the Committee, and

3 they should strongly oppose the last para of the Committee's recommendations.

With a hearty vote of thanks to the Chair, the meeting terminated.

(Signed) J. R. VINCENT,
Chairman.

(Signed) F. H. MOULTON,
Hon. Secretary.

WYNAAD PLANTERS' ASSOCIATION.

PROCEEDINGS OF AN EXTRAORDINARY GENERAL MEETING, HELD AT THE MEPPADI CLUB, ON THE 19TH OCTOBER, 1921, AT 2. P. M.

PRESENT:—Messrs. C. E. Abbott (Chairman), B. Malcolm, B. M. Behr, J. H. B. Sullivan, W. G. Craig, P. A. Naylor, T. P. Gauld, H. R. Bowling, S. H. Powell, H. C. Leslie, C. R. Charsley, and J. A. Gwynne, Honorary Secretary.

The meeting was called to discuss Mr. J. R. Vincent's proposals for increasing the income of the U. P. A. S. I., without increasing subscriptions, as contained in the Secretary's circular of 21st September, 1921.

The first question in the circular, viz :—

> "Are you in favour of either Mr. J. R. Vincent's proposals in original, or as amended by the Committee"

was considered, and on being put to the vote, the meeting by a majority decided against both the original proposals and those as amended by the Committee. Messrs. Behr and Sullivan voted in favour of the proposals as amended by the Committee.

The meeting then considered the alteration in the Articles of Association of the U. P. A. S. I. to give the General Committee power to reduce or enhance subscriptions as recommended by the Committee appointed at the Bangalore Conference. The matter was discussed at considerable length, and the meeting by a majority decided against the proposal.

With a vote of thanks to the Chair, the meeting terminated.

(Signed) C. E. ABBOTT,
Chairman.

(Signed) J. A. GWYNNE,
Honorary Secretary.

PLANTATION RUBBER RESEARCH.

The following review appeared in *NATURE* of 8th September of Dr. G. Stafford Whitby's book ' Plantation Rubber and the Testing of Rubber," published by Longmans, Green & Co., 1920, price 28 shillings.

The general editor of this well-known series refers in his introduction to the extraordinary development which the applications of chemistry have experienced during the last four or five decades. In the case of the rubber industry the development is even more recent. Practically, the whole of the facts dealt with in Prof. Whitby's book have been discovered within the last fifteen years, and with few exceptions the application of a knowledge of the chemistry of rubber to the industry may also be said to date from the introduction of plantation rubber. Previous to 1905, publications dealing with rubber were few and far between. With one outstanding exception, namely, C. O. Weber's "Chemistry of India Rubber" (1902), there was no text book dealing with the subject from a theoretical or scientific point of view. The student at that time could make himself familiar with practically all that was either known or surmised by a study of Weber's treatise, and although many of the ingenious suggestions put forward by Weber have had to be abandoned, the book is one that can still be read with profit.

With the inception and development of plantation rubber several chemists began to take an interest in the study of this material, and from time to time other text-books have appeared. Whereas Weber was able to discover the whole field, including manufacturing technique and chemical analysis, in three hundred pages, many later authors have restricted themselves to special branches of the subject. Prof. Whitby has done this, and, although he has dealt neither with manufacturing technique nor with analysis, his book runs to some five hundred pages. The title, if cumbersome, is certainly descriptive of the contents, and the book falls naturally into two parts, the first dealing with the preparation and properties of plantation rubber, and the second with the physical properties of vulcanised rubber and the interpretation of results obtained in terms of "quality." The first section presents an exact and up-to-date account of the facts and theories underlying the preparation of plantation rubber, and a description of the technique as at present in vogue on the best plantations in the East. Such a task could be attempted only by one who has actually carried out experimental work on a plantation, and controlled the preparation of rubber. Prof. Whitby had unique opportunities for observation and research, and he has made the most of them. Coming home after some years in the East, he has been able to follow up his plantation work with laboratory studies particularly directed to vulcanisation problems and their elucidation. Consequently, the second part of the book presents as thorough and complete a review of the subject as the first.

In the early days of plantation rubber, the planter naturally looked to the rubber manufacturer at home for information and advice as to the best form in which to market his product. But the majority of manufacturers did little beyond pointing out that " fine hard Para " was the best rubber, and should form the ideal of the planter's aims, The tedious and primitive process of the Amazon, however, was not suited to plantation requirements; so, having tested various coagulants and found acetic acid the most suitable, the planting industry eventually settled down to the production of rubber of two types: (1) washed coagulum, air-dried in the form commonly known as pale crepe; and (2) surface-washed sheet rubber dried in a smoke-house, the so called smoked sheet. Faced with these alternatives, the manufacturers were still unwilling or possibly unable to give the planter advice. Some could use only sheet, others only crepe, yet from both varieties very good motor tyres were made and exhibited at the last rubber exhibition in 1914. Any lack of information or advice from the manufacturers was amply compensated for by the brokers and dealers. These gentlemen supplied abundant criticisms of surface defects and other minor details which have kept planters busy in their factories and the local chemists in their laboratories.

In spite, however, of the time thus occupied, a very considerable amount of scientific work dealing with vulcanisation, and the chemical and physical properties of rubber has been accomplished. Prof. Whitby's book is a significant record of the research work carried out on behalf of the planting community. With one or two exceptions, our whole knowledge of the subjects treated rests on the results of such researches. The remainder of the book is concerned with the more purely physical researches on the properties of vulcanised rubber, for which we are indebted to the academic physicists. This is a novel feature, and comprises the first summary of the subject to be published.

The technical aspect of rubber vulcanisation is dealt with by the author in chap. 16. This is perhaps the one chapter in the book which might with advantage have been extended. It is true that our knowledge in this direction is very limited, for reasons already given, but the subject-matter does not include references to some of the more recently published work. It might with advantage have included an account of work on organic and inorganic "accelerators," or vulcanisation catalysts, and cognate subjects, with particular reference to the fact-curing types of plantation rubber in which the "natural accelerators" take the place of the synthetic products which would otherwise have been added by the manufacturer. In this chapter, and indeed throughout the book, the author has succeeded in preserving a detached and impartial attitude when commenting on published results. He has examined each thesis with care, and expressed his reasoned conclusions with moderation.

The book contains a mass of information—in fact, practically everything of importance that is known on the subject—and, while it is put together systematically, it is no mere catalogue of facts and theories.

ABOLITION OF THE TUNDU IN CEYLON.

Below will be found the full text of the speech made by the Hon. the Attorney-General (Sir Henry Gollan) in moving the first reading of "An Ordinance relating to contracts for hire and service" at the meeting of the Legislative Council.

The Hon. Mr. Bernard Senior seconded, and the Ordinance was read a first time.

Sir Henry said the subject of the law relating to contracts for hire and service had been a matter which had been receiving consideration for some time past, and so long ago as August, 1919, a Bill was published, dealing with the conditions of immigration and recruitment, with the indebtedness of the cooly and with his protection in various respects. So far as the indebtedness of the cooly was concerned, however, it was made quite clear that the proposals which appeared in that Bill—or, rather, they did not appear in the Bill because they were set out in the memorandum which was attached to the Bill—were dependent for their acceptance upon being agreed to by the people with whom, in law, the indebtedness had been contracted. A difficulty, however, arose in regard to that Bill, first of all because it was represented by the Public Departments that it was impossible, under certain circumstances, for them to comply with some of the provisions of the Bill, and secondly, because (not very long after its publication) there was a slump in prices in the tea and rubber industries. In consequence of the crisis which arose in these industries it became impossible for employers of labour engaged in the production of tea and rubber to deal with the question of the indebtedness of the coolies in the manner suggested in the Ordinance. Large sums of money were owing to the estates, and it was felt that this indebtedness could not be touched owing to the crisis which had arisen in the two industries. The estates were unable to see their way voluntarily to comply with the suggested provisions of the Bill. So far as the present Bill was concerned, it was not proposed to deal with the whole subject. The object of the Bill was confined to two matters about which he thought he could say there was general agreement in the Colony. and with respect to which a very clear expression of opinion had been received from the Indian Government. It was of no use to blind themselves to the fact that, so far as the labour force of Ceylon was concerned, the Indian Government was in a very strong position. If it desired to do so the Indian Government could hamper very seriously indeed the principal agricultural interests of the Colony. It could even go further and, by exercising executive power, stop the emigration of Tamil coolies from South India to Ceylon altogether. It was unnecessary for him to enlarge upon the results which would follow such a decision on the part of the Indian Government, because the members of that Council were very largely interested in agriculture. Fortunately, however, in regard to these two matters which were dealt with in the Bill, he thought he could say that opinion in Ceylon and in India was in agreement. It was therefore to be hoped that, while Indian views on the subject might be given effect to, the principal industries of Ceylon would not be seriously affected. He proposed, first of all, to deal with that part of the Bill which provided for the

REPEAL OF THE PENAL CLAUSES

in Labour Ordinance No. 11 of 1865. The principle of imposing criminal penalties for breaches of hiring agreements was a very old one. It was continued in many places in England, for instance, until a comparatively recent date. It was, he believed, actually in operation in Madras, from whence a large portion of our coolies came. It was a principle, certainly, with which no one, he thought, would quibble if exercised in certain directions. For instance, take the case of the Army Act. There you had, as a deliberate policy on the part of the Legislature, provision for the imposition of criminal penalties in the case of offences which, but for the provisions of that Act, would be merely breaches of a civil contract. To deal with an extreme case, take the case of a soldier who had contracted to serve. If the Army Act was not renewed year after year, insubordination, disobedience of orders and other offences detrimental to the welfare of the army would be no longer punishable criminally, and the soldier would become simply liable to an action for breach of contract under a civil contract. So far as Ceylon was concerned, the provisions of the law dealing with this matter of penalising breaches of contract of service were contained in Ordinance No. 11 of 1865. That Ordinance applied to all servants, labourers and journeymen, artificers under contracts for hire of service, and a very extensive meaning was given to the word "servant" which was defined in Section 1 of the Ordinance as follows:—"The word 'servant' shall, unless otherwise expressly qualified, extend to and include menial, domestic and other like servants, pioneers, kanganies, and other labourers whether employed in agricultural, road, railway, or other like work." So far as Ceylon was concerned, he thought he might claim that without reference to what had been done in India, there was a desire that what had so often been referred to as the Penal clauses should be repealed. The clauses which it was proposed to repeal were contained in Section 11, 12, 14, 21, 23 and 24 of Ordinance No. 11 of 1865, and Section 4 A of Ordinance No. 13 of 1889.

So far as Section 11 was concerned, it penalised the servant who refused to work or to attend at and during the time and hours, or at the place when and where he shall have contracted to attend. It penalised refusal to finish any work contracted to be done, drunkenness, wilful disobedience of orders, insolence, gross neglect of duty, or other misconduct. Section 12 provided for the criminal punishment of servants for desertion when employed on a journey. Sir Henry thought this clause was an interesting survival of former days more than anything else, because it seemed to refer to a time when communication by vehicles was not so easy as it is nowadays. Section 14 penalised the master who refused, without cause, to act up to his contract. Section 21 was an exempting section originally, but it became unnecessary now in consequence of the proposed repeal of Section 11. Section 24 was also unnecessary, because punishment by imprisonment was no longer to be inflicted.

CRIMPING.

In the course of conversation he had had with various gentlemen with whom he had spoken on the subject of this proposed Bill, he had heard criticisms made with regard to the non-repeal of Section 19 of Ordinance No. 11 of 1865. That section provided a penalty for seducing servants or employing them when bound to others, or harbouring or concealing them. It seemed to him that the objections raised to that section were made under a misapprehension, because the kind of act penalised under that section was very clearly defined, and was of a nature which he thought everybody must regard, to say the least of it, as improper. There was nothing whatever in that section to prevent any employer taking on any servant who had fulfilled his contract and who had not entered into a fresh contract with somebody else, but to go to a servant bound by contract to serve some one else and to induce that servant to leave his master without cause or notice seemed to the speaker extremely unfair and peculiarly mean. He did not think it was in any way unfair to penalise a man who attempted to bring about a breach of contract such as was referred to in Section 19.

Honourable members would naturally ask what would happen when the penal clauses were repealed. The answer was a simple one, because employers and employed would come under the ordinary law of the land. If a man broke his contract and went away without giving notice, it would be possible for the employer to take civil proceedings, but it would not be possible to prosecute such a servant criminally. This he thought was all that it was necessary to say in regard to the repeal of the penal clauses.

The Tundu.

Then they came to another matter, namely that of the tundu, which was not perhaps quite so easy to explain, and was a subject which one approached with no little diffidence, because the mere mention of the word tundu was apt almost at once to raise the temperature of any conversation. Before he dealt with the sections of the Bill which provided for the abolition of the tundu, he thought it desirable to make a distinction, and it was all the more necessary that he should do so in view of the petition which had just been presented by the Hon. the Member for the Eastern Province. The distinction he desired to make was this. So far as the present Bill was concerned not a word was said —nor could any legal difference be made—as regards the indebtedness of the estate of the kangany, or of the cooly. The indebtedness remained the same whether the present Bill passed into law or not, and, so far as the debt was concerned, the same legal remedies would remain after the passing of the Bill as existed at the present time. He now came to the question of the tundu. He had heard much discussion on the subject, and, so far as he could make out, the tundu was, in its inception, about as innocent as any human invention could be, because all that it was intended to do was to make it easy to carry out a sort of understanding which already existed between estates, whereby one estate taking on labourers from another estate expressed its willingness to pay off advances made by the paying-off estate, these advances having been made under a practice which, he understood, had prevailed for a very long time. If, therefore, indebted coolies wished to leave their employment, and obtain employment elsewhere, the practice was to issue a tundu. That tundu stated that the paying-off estate was willing to waive any notice, and discharge these coolies provided the taking-on estate was willing to pay off the amount of those advances, and it was in order to facilitate the recovery of those advances and to make it easier for coolies to obtain employment elsewhere that, apparently, the tundu was invented. He would like to call the attention of the House to one very important fact, and that was that the tundu, in itself, did not create the debt, nor was it, in the ordinary sense of the word, a security for the debt. All that the tundu said was this: " I am willing to discharge these coolies, provided the taking-on estate is willing to pay the advances which have been allowed against this tundu." Like most things of human creation the tundu had fallen from its high and innocent estate and very serious evils had arisen from it, and it was most interesting to remember that the people who had had most experience in the working of the tundu—namely the working planters of Ceylon—were the very people who were most opposed to its existence. On the present occasion he proposed to refer only to two distinct directions in which the tundu had been improperly used. First of all, it very often happened that a kangany wanted more money. He thereupon went to the estate Superintendent and said :—" I want another advance, Sir," and, if the Superintendent was not willing to make that advance, the kangany replied: " Then give me my tundu," and went away, very probably disturbing labour which was very happy and contented on the estate. It seemed ridiculous that coolies who were happy on an estate and quite satisfied with the prevailing conditions should be liable to be suddenly up-rooted because a Superintendent refused to make a further advance to a kangany. Legally, perhaps, it could not be said that demands of that kind were blackmail, but, in fact, they were something very akin to it. If such further advances were made they were made under circumstances which rendered it almost essential for the Superintendent to comply with the demand of the kangany. It was quite clear from what he had said that the evil of indebtedness had been steadily piled up. But there was still another, and. in some respects, an even more serious evil which had arisen, and that was the habit which had almost become the practice now of hawking around the services of the cooly with the object of getting more money by way of advances; or. in any case, not with the object of serving the real interests of the cooly. Some might say that the remedy was quite apparent, and that all a cooly need do, if he desired to remain on an estate, was to refuse to go, or if he desired to leave an estate was to give notice. But, as a matter of fact, the family or clan feeling was so strong that the cooly had practically no freedom of action whatever in the matter. His services were exploited practically without his consent, and a condition of affairs had arisen which was regarded in Ceylon as most undesirable, and which had met with very serious objection on the part of the authorities in India. So far as he could ascertain, in former days the tundu was merely a matter of arrangement or contract between estate and estate, but for the first time legislative notice was taken of the system by Ordinance No. 9 of 1919 which added Section 24 to Ordinance No. 13 of 1889, in which a reference to the tundu appeared. In view of the proposal to abolish the tundu, Section 24 of Ordinance No. 13 of 1889 had had to be recast, and if Hon. Members would look at the draft Ordinance now before the House, they would find the section in its new shape in Section 2 of that Bill. The new section read as follows:—

(1) Whenever any labourer quits the service of any employer, having given the notice or warning required by law, it shall be the duty of the employer to prepare a discharge ticket as nearly as material in the form III in schedule C. If the labourer entered the service of the employer on a discharge ticket, the employer shall file such discharge ticket in his office, and shall prepare a new discharge ticket.

(2) Where the labourer quits the service of his employer in order to take service with some other employer in Ceylon, the former employer shall forthwith forward the discharge ticket to the new employer. But in no case shall the discharge ticket be given to the labourer.

(3) Where a labourer has given the notice or warning required by law, but has not, at the time when he quits the service of his employer, secured any other employment, it shall be the duty of the employer to give him a memorandum in the form IV in schedule C. stating that the labourer has duly given notice, and that a formal discharge ticket will be issued to any new employer on application. Upon such application being made, it shall be the duty of the employer to forward to the new employer within five days of the date of application a discharge ticket.

(4) Any employer who fails to prepare, or to forward a discharge ticket, or to give to any labourer a memorandum in any case where he is required by this section to do so, shall be guilty of an offence, and shall be liable on conviction thereof to a fine which may extend to one hundred rupees, and a further fine not exceeding five rupees for every day during which such default shall continue.

DISCHARGE TICKETS.

By Section 23 of Ordinance No. 13 of 1889, no labourer can be taken on by an estate without a discharge ticket or his tundu. It was not proposed, at this time, to deal with this question of discharge tickets, and it was thought better that the subject should be dealt with when the labour law as a whole came to be considered, and it was for that reason that Section 24 of Ordinance No. 13 of 1889 had been inserted in the Bill with the provisions relating to the tundu left out. It was for the same reason that a number of forms had been included in the new Bill. Some of those forms, he believed, were practically obsolete, but these forms were referred to in sections of the Bill which had not been repealed, and, therefore, it had been thought better, for the sake of harmony between the Bill and Ordinance No. 13 of 1889, that these forms should be re-enacted. Originally, in each of these forms a statement of the indebtedness or of the amount of the liability of the cooly was inserted. In view, however, of the new provisions with regard to the tundu, that statement of liability, it was felt, ought not to appear, and for that reason the forms were re-enacted in the present Bill practically as they appeared in Ordinance No. 13 of 1889, with the exception that the statement in regard to the liabilities was left out.

PENALTIES PROPOSED.

Sir Henry next proceeded to deal with the steps which it was proposed to take to make the issuing of tundus unlawful and to punish those who contravened the law in this respect. It was obvious that the contravention of a section such as Section 4 of the Bill was difficult to prevent. Section 4 read:—

(4). (1) Any person who, after the commencement of this Ordinance—

(a) Issues or causes or permits to be issued a tundu ; or

(b) Accepts or agrees to accept any tundu or any obligation arising there under or intended to be imposed thereby ; or

(c) Gives or enters into any undertaking, express or implied, with regard to any tundu ;

to, or in respect of any labourers as defined in Section 3 of Ordinance No. 13 of 1889, shall be guilty of an offence, and shall be liable on conviction thereof to a fine not exceeding twenty thousand rupees, or to imprisonment of either description for any period not exceeding two years, or to both.

(2) For the purposes of this section the expression "tundu" means the document commonly called a tundu, and in use, at the time of the commencement of this Ordinance, under the provisions of Ordinance No. 13 of 1889; it also includes any document, whatever its form may be, whereby the objects attained by a tundu, at the time of the commencement of this Ordinance, are sought to be attained after such commencement.

(5). Sections 11, 12, 14, 21, 23 and 24 of Ordinance No. 11 of 1865, and Section 4-A of Ordinance, No. 13 of 1889 are hereby repealed.

The terms which had to be used in such a section were necessarily wide, and an attempt had been made in framing this section to prevent any evasion of its provisions. Any document, therefore—although it might not be exactly in the same form as the existing tundu—which tried to bring about the conditions which prevailed under the existing tundu came within the scope of the definition of a tundu, and the issue of any such document would be equally punishable. Honorary Members might also have been struck with the severity of the punishment which it was proposed to inflict. All that he could say was that this section in this respect exemplified very clearly the well-known principle of the criminal law that, where an offence is difficult to detect, a correspondingly severe penalty must be imposed. Where an offence was easy to detect there was no necessity for so severe a penalty. He called the attention of the House to the fact that any offence which was committed under this section could be committed only as a most deliberate act. The kind of offence against which provision was made in this section was of such a nature that it could not be committed accidentally. A tundu or other similar document which might be issued after the passing of the Bill now before the House could be only so issued in the most deliberate manner possible.

This concluded Sir Henry Gollan's remarks.—(*Times of Ceylon*)

LETTERS TO THE EDITOR.

(The Planters' Chronicle is not responsible for the opinions of its Correspondents).

Planters' Benevolent Fund.

I should like to suggest, through the medium of your columns, that this Fund should be converted at an early date to a General Pension Fund such as now obtains, I believe, in Ceylon. Would not this be far more satisfactory than the present system, as well as more businesslike and certain? Companies or proprietors and estate superintendents would contribute equal amounts sufficient to secure a decent pension for every planter with 20 or 25 years service, and provision could also be made for the wives and families of planters left in poor circumstances.

I would venture to suggest that the *Chronicle* should obtain details of the present Ceylon scheme for pensions, and, when obtained, should publish same with a view to the drawing up of a similar scheme for S. India, which could be discussed at the next Annual U. P. A. S. I. Meeting.

Yours faithfully,

X.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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GHANDISM EXPOSED

We have received from the Propaganda Sub-Committee of the Indian Tea Association a copy of *Argus's* book "Ghandism Exposed", which is published by Shiva Prasad Baruah, M. L. C (Assam.) It exposes many of the fallacies of Ghandism, and the Sub-Committee have sent copies to Agency houses with a strong recommendation that the book should be made available for perusal by the clerical staffs of gardens, etc. It is felt that a clearly written and intelligible account of the non-co-operation movement, such as is given in this work, will prove of the utmost value in convincing garden staffs of the hollowness and futility of the movement.

For our part we agree with this feeling, and have long thought with those who considered the various governments lacking in foresight for not issuing just such a book on Ghandism as the one before us. Ghandism in Southern India, of course, is not the flourishing evil that it is further North. This is most probably due to the medium in which it is endeavoured to make a culture of the bacillus of non-co-operation. It is certainly not due to any particular effort either on the part of the authorities in Madras to fight it or on the part of the vested interests to combat a policy which is directly aimed at their prosperity.

We are interested in this publication, because, it will be remembered, the question was discussed at the last Meeting of the U. P. A. S. I. of issuing a pamphlet in the vernaculars for distribution among estate labour in S. India exposing the folly of the Assam Tea Gardens strike. As we read in Argus's book, Mr. Ghandi's first intention was to confine his non-co-operation movement to the educated classes. He found subsequently that his policy was a failure with that class, for instance, the boycotting of the Councils, the surrender of titles, the giving up of their practices by Lawyers ; all these instances point to failure by Mr. Ghandi to impose his will upon the intelligentsia. This being so, in spite of his solemn advice to his followers on previous occasions not to tamper with the masses, Mr. Ghandi, or his lieutenants more than he have turned from the educated classes, and tried to secure success for their movement by creating unrest among the masses. It is therein that great potentialities for danger and mischief lie.

We have seen recently in these pages that the pamphlet which the U. P. A. S. I. Executive proposed to publish has been turned down by the Publicity Board. We will not call in question the wisdom of this refusal as, after all, there is nothing to prevent the U. P. A. S. I. Executive from issuing the pamphlet themselves if they wish. It has occurred to us, however, after reading the book under review, that we might well start as Mr. Ghandi started—if we are to initiate any campaign at all, and place before the more educated of our employees first, the true facts regarding this non-co-operation movement. It is possible that if Estate coolies were approached to-day regarding the movement they would express ignorance. We have said that the movement in Madras has not flourished as it has further North, and it may be that we should be well advised not to interfere with the blissful ignorance of our labour by being wise on a subject of which they so far know nothing. But even if that were so there is no reason why we should not be prepared for eventualities, and it is for that reason we recommend the addition to every estate library of Argus's "Ghandism Exposed." It should enable all our subordinate staffs, the conductors, Apothecaries, Factory writers, Clerks, etc. to become *au fait* with the direful consequences of the movement, and thus, through them, should occasion arise, the labour could and would be taught the folly of imitating the garden labour in Assam. At the first sign of trouble, the first advent of the agitator, a weapon would be at hand for his discomfiture in the shape of an intelligent appreciation of the position by those of our staffs *who come most in contact* with the labour.

We shall be glad to obtain further copies of the publication (Price Re. 1-8 0) on receipt of application from Estate Superintendents.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT NO 22.

The Deputy Director of Agriculture, Planting Districts, attended the Annual Meeting of the local branch of the Rubber Growers' Association, held at Cochin on 29th. On 2nd November, Mr. Anstead leaves Coimbatore on a tour of inspection of the Planting Experiment Stations. He will be at Mooply from 2nd to 5th, and from there he goes to Mundakayam to the Mycological Station, where he will be from 8th to 12th. After that, he goes to Peermade to visit the Tea Experiment Station, and will be there till 18th. On 20th, Mr. Anstead expects to reach Alleppey, and his movements after this date will be recorded later. Letters will be regularly forwarded from head-quarters, so as to reach him as rapidly as possible.

2. NECTRIA CINNARBARICA ON TEA.—Some specimens of tea shoots from tea pruned last January have been received attacked by this fungus. The fungus is a wound parasite, and the bushes attacked become moribund, but seldom die right out. The stems die back and new shoots arise lower down, but these are thin and weakly. In general appearance, the affected bushes are like those badly attacked by Red Rust. Callosities on the stem are sometimes formed in an attempt by the bush to repair the damage. The fungus attacks the bark of the woody stems and growing layers and spreads from them down the medullary rays to the pith. It does not kill the growing layers at once, but gradually starves them. Frutty stages are produced on the bark when the shoots die or shortly before. Inoculation work has shown that the fungus is a wound parasite. Diseased bushes should be pruned to good wood, and sprayed with Bordeaux Mixture immediately after pruning to protect the cuts from infection, which comes from trees in the jungle, or sometimes from shade trees. Prunings should, in all cases, be burned on the spot at once. Very badly attacked bushes may be collar pruned. Mr. A. C. Tunstall has published a pamphlet on this disease under the title of "A Stem disease of Tea caused by Nectria cinnabarica," which may be obtained from the Secretary of the Indian Tea Association, Calcutta, price eight annas.

3. BONE MEAL.—I understand that Messrs. Hye & Co., have started a Bone Meal Factory at Bellary. This sort of enterprise should be encouraged as far as possible, by planters, in view of the fact that the United Planters' Association of Southern India have constantly passed resolutions about the preservation and local use of Bones in India. Anything done to reduce the export of bones and encourage their consumption in the country is a move in the right direction.

4. THE EXPERIMENT STATIONS.—At the Coffee Experiment Station, fine dry weather was experienced during the week, with only one small shower of 0·05 inch on 16th. A round of fly picking has been completed, and has resulted in a yield of about 15 bushels of cherry. One plot sprayed with Bordeaux Mixture in May has been re-sprayed, as a protection against leaf disease.

At the Tea Experiment Station, the first part of the week was dry. 2·27 inches of rain were recorded. 232 lbs of green leaf were plucked from 4·16 acres, a yield of 55·7 lbs. per acre. Wood Ashes from the Stagbrook factory have been applied to Plot 23, to increase the potash content of the soil and note the effect on Mosquito Blight attack. Hand weeding was done over 7 acres. Green manure seeds sown broadcast are beginning to germinate.

At the Rubber Experiment Station, Mooply, only 0·40 inches of rain was measured during the week. Daily tapping was done, and 117 lbs. of wet sheet and 19½ lbs of wet scrap obtained from 1,262 trees, a yield of 0·108 lb. per tree, as compared with 0·116 lb. last week. In plot No. 15, where a change over to the opposite side has been made, the yield is low, and the yield of Plot 16 rested in July and August is gradually falling now.

At the Rubber Experiment Station, Tenmalai, 3·03 inches of rain was gauged during the week. The dried branches killed back by *Phytophthora Meadii* and other causes are being removed from the trees, and a census of trees is being made. Daily tapping was done on 395 trees and 41·875 lbs. of wet sheet and 7·125 lbs. wet scrap obtained, a yield of 0·124 lb. per tree, as compared with 0·148 lb. last week.

(Signed) RUDOLPH. D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

27–X–21.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore,

2nd November, 1921.

SECRETARY'S REPORT NO. 34.

1. INCORPORATION OF DISTRICT ASSOCIATIONS.—The Association's Solicitors write to say that they have received intimation from the Government of Mysore that that Government have authorized the omission of the word "Limited" from the names of the Planters' Associations in Mysore, and have requested the Registrar of Joint Stock Companies to register the Associations accordingly.

2. EXPORT DUTY ON TEA.—The following is the text of the G. O. No. Mis. 2016, dated 28th October, 1921 :—

> "In continuation of Government Order No. 1796, Development, dated 23rd September, 1921, the Secretary, United Planters' Association of Southern India, is informed that his letter No. 2753, dated 2nd September, 1921, was forwarded to the Government of India. That Government have now replied that they regret they are not prepared to reconsider their opinion as expressed in the Commerce Department, letter No. 3076, dated 14th April, 1921, to the Indian Tea Cess Association, a copy of which was communicated to him with Government Order No. 767, Development, dated 7th May, 1921."

3. LABOUR COMMISSION.—When meeting at Cochin, it was announced that it was possible that one of the members might find it necessary to leave India before the duties of the Commission were completed, so the members persuaded Mr. Lord, who was first asked by the Committee to serve and who had refused, to reconsider his decision, and finally persuaded him to serve on the Commission in addition to the members notified last week. The Commission have decided to make two tours, the first from the 9th to 23rd December, and the second from the 3rd to about the end of January.

4. BILLS OF LADING.—At a meeting of the London Chamber of Commerce, held on 9th October, to a resolution proposing the acceptance of the Hague Rules 1921, Sir Stephen Demitriadi, representing a number of Trade Associations including the I. T. A. proposed the following amendment:—

> "That this Chamber does not approve of the Hague Rules 1921, and asks that legislation, which was unanimously recommended by the Imperial Shipping Committee in their Report, dated February 1921 and was approved by the Prime Ministers and representatives of the United Kingdom, the Dominions and India at their Conference held during June, July and August this year, and has, therefore, the support of the whole of the British Empire should be introduced at an early date."

There was a long discussion, but the meeting decided to adjourn to a future date, and came to no decision.

(Signed) C. H. BROCK,
Acting Secretary.

COORG PLANTERS' ASSOCIATION.

PROCEEDINGS OF A QUARTERLY GENERAL MEETING, HELD AT THE BAMBOO CLUB, POLLIBETTA, ON MONDAY, 17TH OCTOBER, 1921, AT 2 P. M.

PRESENT.—Messrs. W. M. Ball (Chairman), G. Pearce, C. G. Maclean, M. Pollard-Urquhart, W. G. Parsons, W. A. F. Bracken, H. M. Mann, F. Macrae, N. Schofield, P. G. Tipping, H. Jackson and W. Egerton, (Honorary Secretary.)

1. The Secretary read the notice convening the Meeting.

2. The minutes of the last Annual General Meeting were taken as read.

3. Report of the delegates.

Mr. Chairman and Gentlemen, in accordance with your instructions your delegates duly attended the U. P. A. S. I. Conference. According to your committee's instructions we supported all resolutions which were brought up for the benefit of the Planting community generally.

It is not proposed to enter fully into details of the whole of the business transacted at the meeting, as you have probably read it in the Press.

We did not take public exception to opening speech of the Chief Commissioner of Coorg. He appeared so positive that planters had been notified of his arrival in Pollibetta that we did not care to contradict him. Mr. Macrae, however, had a few moment's private conversation with him after the meeting, in which he emphatically pointed out to him that this was not the case.

With reference to planting matters, which the Conference was held for, the one important item to Coorg, *viz*, the Coorg Railway, was dismissed by the Chief Commissioner with the few words that "We saw no use in approaching the Government of India for the moment."

A very slight reference to the roads was made, in which the Chief Commissioner *believed* that a good deal had been done for Coorg. This ended the planting subjects as far as the Chief Commissioner's speech was concerned.

THE BUDGET.—The following resolution was passed and supported by your delegates:—

"That the Secretary is hereby instructed to communicate with the secretaries of District Associations informing them that it is imperative that all overdue subscriptions should be paid at once, and that the U. P. A. S. I. will take steps to help the District Associations in the recovery of these sums. The U. P. A. S. I. in general meeting also wishes to record the fact, and impress it on all District Associations that, as all subscribing estates have guaranteed their subscriptions for five years, no resignations can or will be allowed until at the end of the guaranteed period."

LABOUR DEPARTMENT.—The following resolution was passed and supported by your delegates:—

"That the Executive Committee be empowered to appoint a Commission to enquire into the working of the Labour Department generally, including the Income and Expenditure of the Association."

This resolution was the result of a good deal of discussion with reference to the working of the Labour Department, and the proposal to enable the General Committee of the U. P. A. S. I. to raise the rates of subscription when and how they considered necessary. Suggestions were put forward that, instead of increasing rates of subscription, the Labour Department should raise money by charging a fee for recovering money,

do do for all civil cases,

do do for warrants served.

It was argued that the cess which we pay at present pays for the staff and organisation of the Labour Department, and that an extra charge should be levied for extra services. The whole question is being referred back to District Associations for discussion and report before the 30 th November.

The following resolution was passed:—"That no Association should raise the pay of coolies without giving six months notice of their intentions to the Labour Department, for circulation to other Associations."

LABOUR LAWS.—Workman's Breach of Contract Act. Government is unwilling to raise the amount of advance over Rs. 300, but is being approached with a view to extending the time limit from 3 to 6 months.

POLITICS.—The following resolution was passed:—

"That this Association communicates with other purely mofussil bodies representing the Anglo-Saxon community with a view to obtaining direct representation in the Imperial Legislative Assembly, or Council of State."

Your delegates strongly recommend the members of this Association to read Mr. C. H. Godfrey's very able speech on this resolution.

We wish to place on record our appreciation of the useful work which has been done by our Planting Member of Council, Mr. J. A. Richardson, M. L. C.

With regard to the Chief Commissioner's opening speech, the following resolution was passed:—

"The residents of Pollibetta were very surprised at reading in the *Madras Mail* and elsewhere the opening speech of the Chief Commissioner of Coorg at the U. P. A. S. I. Annual General Meeting at Bangalore on August 22nd, 1921, accusing the planters of what they consider a want of courtesy and hospitality. They most emphatically point out that no notice was circulated amongst the residents of South Coorg, who were very disappointed to learn that their Chief Commissioner had again been in the district without their being aware of his visit."

4. The U. P. A. S. I. circular *re* Mr. Vincent's resolution was discussed, and the following resolutions were passed:—

"That this Association is in favour of the appointment of a commission to enquire into the working of the Labour Department generally and into the income and expenditure of the Association. That this Association is opposed to any alterations or amendments in the Articles of Association, or of increasing the expenditure of the working of the Labour Department within the period of the guarantee, being of opinion that any such step would lead to many resignations."

5. The Judicial Commissioner's order in Criminal Revision Petition No. 1 of 1921 was read and discussed. The Honorary Secretary was instructed to send the file to the Secretary, U. P. A. S. I. asking him to take the matter up with their legal adviser.

6. CORRESPONDENCE.—Read letter from the Executive Engineer, West Coast Division, Calicut. The Honorary Secretary was instructed to write to the Secretary, U. P. A. S. I., pointing out that practically the same reply *re* bridges and culverts on the Tellicherry-Coorg roads was received two years ago, and nothing apparently has been done to improve the roads, and requesting him to press the matter most strongly.

With a vote of thanks to the Chairman the meeting ended.

(Signed) W. M. BALL,
Chairman.

(„) W. EGERTON,
Hon. Secretary.

FERTILISERS.

Any points relevant to the purchase and employment of fertilisers must always be of great interest and utility to Planters who aim at increasing the yield and improving the quality of their crops while at the same time compelled to practice the most rigid economy consistent with the attainment of the results desired.

A circular issued by a Manure Works in South India at the end of August last, having recently reached me, I am enabled to compare their prices with those now asked in the United Kingdom where there has been a heavy fall in the cost of most fertilisers since May last, as the following instances will show:—

	May.			Sept.			Madras Manure Works.		
	£.	s.	d.	£.	s.	d.	Rs.	A.	P.
Sulphate of Ammonia									
25% neutral quality...	26	0	0	14	6	0			
25¼% Ordinary do. ...	25	2	0	13	3	0			
24¾%	24	11	0	12	17	0			
20%	...			...			... 450	0	0
Basic Slag 20% ...	5	13	6	4	0	0			
17/18% ...	...			...			... 125	0	0
Superphosphates 30%...	8	5	0	5	15	0			
37·4%.	...			f.o.b. 4	7	6	... 110	0	0
39·6%.	...			„ 5	10	0			
81/88%	...			„ 18	10	0			
Nitrate of Soda ...	19	17	6	18	0	0	... 450	0	0

POTASH SALTS.—French and German are now half what they were last March, and should fall still lower owing to competition between the French and German producers.

BASIC SLAG is practically the same as May for higher grades which are only produced in very limited quantities owing to the miners' and others strikes, such as that of the Moulders, etc.

SULPHATE OF AMMONIA.—The following note by Dr. Russell in the "Journal of the Ministry of Agriculture" for October, 1921, is of interest. In reply to an enquiry as to the difference between the neutral and the acid sulphates, he states that pre-war sulphate was always slightly acid, but in recent years the mode of manufacture has been modified so that the acidity is so slight as to be practically negligible.

This neutral sulphate has the following advantages over the acid :—

(a) It is in smaller crystals, and can therefore be more evenly distributed by the machine.

(b) It does not cake, and therefore does not require to be broken up before use.

(c) It is not wet, as it does not absorb atmospheric moisture.

This neutral sulphate is now obtainable from the South Metropolitan Gas Company, London, who guarantee it to contain 25½% Ammonia.

Freight charges have now fallen. The Clan Line Steamers maintain a monthly service during the season to Calicut and other West Coast Ports, and their rates are as follows:—

Superphosphates ...	30s. and 10% per ton weight
Sulphate of Ammonia ...	40s. and ,, do do
Sulphate of Potash ...	45s. and ,, do do
	w/m ships option

It is of interest to compare the above with the same Company's rates in April, 1914:—

	Direct.	Transhipment at Bombay.
Basic Slag	25/-	35/-
Nitrate of Soda Sulphate of Ammonia Sulphate and Muriate of Potash Superphosphates	... 35/-	45/-

Above rates were per ton of 20 cwts subject to 10% primage less an immediate return of 5% and 10% deferred commission; no returns being allowed with transhipment at Bombay.

In the matter of the choice of fertilisers, many of these are supplied in ready-made mixtures, and it seems desirable that details of their composition and not only the percentages of guaranteed content of Nitrogen, Phosphoric Acid, and Potash, etc. should be asked for: for instance, Bone Superphosphates are considered to give better results than Mineral phosphates, and the soil is more benefitted by the former. Again, Bone Meal in the circular previously quoted from is said to contain 22% insoluble phosphates and is valued at Rs. 4-1-0 per unit of phosphate; whereas Steamed Bone Meal with 60% of phosphates at Rs. 175 per ton costs Rs. 2-8-8 per unit of *soluble* phosphate. It is true, however, that the latter contains only 1% Nitrogen while the Bone Meal contains 3½—4% the value of which has to be taken into account. As to the method of ascertaining this, readers should obtain Leaflet No. 72 from the Ministry of Agriculture and Fisheries, 10, Whitehall Place, London S. W. 1. Copies are supplied gratis on application.

The following useful leaflets are also similarly obtainable:—

No. 93. Farmyard manure.
No. 170. The use of Lime in Agriculture.
No. 175. Waste organic substances as manures.
No. 270. The sale of low quality manures at excessive prices.
No. 335. Potash Fertilisers.
No. 379. Nauru Phosphate.

No. 379 is a recent issue, and deals with the exceedingly rich phosphate deposits in the island of Nauru, (Pacific Ocean) recently acquired by the British Government.

13th October, 1921. W. A. L.

RUBBER GROWERS' ASSOCIATION, SOUTH INDIAN BRANCH.

PROCEEDINGS OF THE SIXTH ANNUAL GENERAL MEETING OF THE SOUTH INDIAN BRANCH OF THE RUBBER GROWERS' ASSOCIATION, HELD AT THE CLUB, ON SATURDAY THE 29TH DAY OF OCTOBER, 1921, COMMENCING AT 11-10 a. m.

Present—Mr. J. R. Vincent, Chairman.
Mr. J. A. Richardson, Planting Member.
Mr. J. Mackie, (Messrs. Harrisons & Crosfield, Ltd.)
Mr. E. Lord, do.
Mr. E. H. Halliley, (Mooply Valley Rubber Co., Ltd.)
Mr. G. A. Brooke (Kutikul Estate).
Mr. W. A Lee, (Messrs. James Findlay & Co.)
Mr, R. Fowke, (Messrs. Barber & Pascoe).
Mr. R. D. Anstead, (Deputy Director of Agriculture, Planting Districts).
Mr. H. Ashplant (U. P. A. S. I. Rubber Mycologist).
Major C. H. Brock, Acting Secretary.

Read notice calling the Meeting.

The proceedings of the last General Meeting, held on 5th October, 1921, were taken as read and confirmed.

Before the proceedings of the meeting were started, all Members stood while the Chairman alluded to the loss the Association had sustained by the sad death, under tragic circumstances, of Mr. S. P. Eaton, of Pullangode Estate, who was killed while at his post and doing his duty. The Meeting passed a vote of condolence and sympathy with his relatives and Mrs. Eaton.

CHAIRMAN'S ADDRESS.

The Chairman then addressed the meeting as follows :—

Gentlemen,—In addition to the addresses by Messrs. Anstead and Ashplant, we have only a small Agenda, but as the items are important, and may require much discussion, I will not detain you for long. I should like to mention, however, my very hearty optimism regarding the future of the Rubber Planting Industry in South India, if the vagaries of exchange do not play havoc with the proceeds of our sales, and to express a hope that South Indian Planters will be able to come undamaged through the crisis that is on us.

One result that the depression in the Industry should have, is to bind us more closely and strengthen us in our organisation. There are opportunities of shewing this strength if we can be unanimous in asking the R. G. Association in London to agree to our proposals for restriction of output; by an united front in requesting Government to make good the losses sustained by planters during the recent riots in Malabar; and also by all of us co-operating with the U. P. A. S. I., the Association which has provided our Industry with a Mycologist.

In connection with this last subject, the U. P. A. S. I., I have much pleasure in welcoming Mr. Ashplant to the first meeting of the R. G. A. in South India since his arrival, and I am sure you will all listen with pleasure and interest to the address he is about to give us.

We are always glad to see our old friend Mr. Anstead, who will doubtless be able to give us first hand information about Tapping, now that he has the two rubber Experiment Stations in working order.

With regard to the position of plantation rubber at the present day, opinions are very conflicting, and even the experts are now quarrelling as to the stock of raw rubber in the world. There is much to be said for the views of Mr. H. J. Temple as expressed in the *Ceylon Times*, and one reason why I think them sound is the way that the price of rubber is being sustained at 8d. to 9d. per lb. Were the position so utterly hopeless as the pessimists would have us believe, I want to know why the price of raw rubber remains at 8d. or 9d. Why has it not gone down to 2d. or 3d. per lb? I firmly believe the reason is that the alleged stocks in manufacturers' hands are a myth, and that actually their stocks are as low as possible.

There are several indications leading one to believe that the position will in time be much better, and amongst these I would place Peachey's cold process of vulcanisation, and the vulcanisation of rubber from the latex, said to have been effected by an F. M. S. Planter, which should all lead to an increase in consumption. The manufacture of mats and boot and shoe soles from raw rubber is also being undertaken, and in time it may be that we shall find Estates vulcanising their own rubber and turning out their own manufactured rubber goods. The crisis through which we are passing may therefore prove in the end to be a blessing instead of a curse. With the high prices of the boom times, so many uses would not have been found for rubber, nor would F. O. B. costs have come down as much as they have. The low price of our product has forced us to scan not once, but many times, every item of our expenditure, and the result will be, I feel confident, the placing of the Industry in a much sounder position, eventually, than ever before.

We now know that the R. G. A. scheme for a Corporation to control outputs and sales has, unfortunately, fallen through. It is to be hoped that the Association will not lose heart through this failure, and that it will be able to evolve something easier of execution and which will appeal more to the producer. The proposal made at the last Annual General Meeting of the U. P. A. S. I. for the cessation of Tapping for 3 or 4 months in the year has been voiced, I see, both by Ceylon and F. M. S. Planters, and this, combined perhaps with a co-operative selling organisation which the R. G. A. could easily set up and control without much expenditure, might do much to remove the unwanted surplus of rubber in stock in London. These proposals are well worth discussing, and, if approved, of putting before the parent Association in London for its acceptance.

In conclusion, gentlemen, I wish to extend our hearty thanks to the members of the Cochin Club for so kindly giving us this room for our meeting, and for arranging for our accommodation during our stay here. (Applause).

COMPENSATION FOR DAMAGE BY MOPLAH REBELS.—The Meeting discussed this subject at length, and the following resolutions, proposed by the Chairman, were carried unanimously:—

"That the Rubber Growers' Association in London be requested to arrange for questions to be asked in Parliament as to whether compensation has been paid or will be paid to those Companies whose Estates have suffered at the hands of the Moplah Rebels, and to press for adequate compensation for the dependents of the late Mr. S. P. Eaton."

"That this Association request the Government of Madras to compensate all Planters and Estates for their losses incurred through the Moplah Rebellion."

RESTRICTION OF OUTPUT.—The Chairman read out to the Meeting figures regarding the restriction of out-put which had been collected by the Secretary. These figures showed that from the estimated normal out-put returns, received from the Estates, the actual restriction for the half-year, from January to June, inclusive, amounted to about 38%. He suggested that the Meeting might pass a resolution in the same terms as has been passed at the Annual Meeting of the U. P. A. S. I.

Mr. Halliley said that they should take the same line as Burma had all along taken, and refuse to bind themselves to any further restriction.

Mr. Richardson said that he agreed with Mr. Halliley, and pointed out that with their short yield, due to climatic conditions, any form of voluntary restriction was suicidal.

Mr. Mackie pointed out that the only factor in restriction was prices. When prices were below cost of production out-put automatically restricted itself, and no so-called voluntary restriction could be of any lasting good. The struggle would go on until large areas of rubber had gone out, when the demand would catch up to supply.

Mr. Ashplant said that with the restriction which nature had already imposed on them, it was folly for South Indian planters to voluntarily undertake any further restriction, and gave an interesting explanation on various points in this connection.

Mr. Halliley moved the following resolution:—

"That Mr. Ashplant's remarks be forwarded to the Rubber Growers' Association in London, and that the opinion of the Local Branch is that any further voluntary restriction of out-put in Southern India is out of the question."

The resolution was put from the Chair and carried unanimously.

U. P. A. S. I. SUBSCRIPTIONS.—There was considerable discussion regarding this subject, with a view to deciding what line should be taken by Rubber planters at the forthcoming meetings of the U. P. A. S. I. As this was not a R. G. A. matter, no resolution was put to the Meeting.

RUBBER MYCOLOGIST.—Mr. Ashplant then gave the meeting an interesting address with reference to 'thinning out.'

This was followed by questions being put to Mr. Ashplant and a general discussion, after which the Chairman thanked Mr. Ashplant for all his remarks on behalf of the Meeting.

Mr. R. D. Anstead then addressed the Meeting on the subjects of Cover Crops and the Cessation of Tapping during monsoon months, at the close of which he answered a number of questions on the points dealt with. Mr. Anstead said:—

Mr. Chairman and Gentlemen,—Now that large areas of Rubber are thrown out of tapping, and it is of the greatest importance to reduce Estate expenditure as much as possible, the subject of weeding has become of great interest, and I venture to think that the practice of the use of green manures and cover crops, which I have preached for so many years, has come into its own. On all sides, I find planters turning to this device to help them out of their present difficulties.

In the case of young clearings, where weeds can and do grow readily, I am convinced that the establishment of a cover crop of some plants which can be controlled with comparative ease is the right thing. Not only does this control the growth of troublesome weeds, but it protects the soil from wash. The loss due to wash by the heavy rain has, in the past, been enormous, and I feel sure that planters, as a whole, do not realise the damage that has been done. When you consider that many of our Estates get 20 or 30 inches of rain a month, during July and August, and from September to November, 10 to 15 inches a month, much of it in heavy deluging showers, it is obvious that if the soil is kept bare during these months, that is to say, if a system of clean weeding is adopted, the loss of top soil must be very great. This erosion process goes on year after year, with the result that by the time the Rubber is coming into bearing most of the top soil has been lost, and only sub soil remains, I have seen an Estate start with a black forest top soil, and this change to a stony red soil in the course of five years, due to nothing but constant wash.

The loss has been recognised, and a system of catch pits and terraces adopted; but in our rainfall these are quite insufficient. Moreover, Mr. Ashplant has told us that they do more harm than good, by reason of the roots that are cut during their construction. Once the top soil with its burden of plant food and bacteria has been lost, no amount of subsequent manuring will replace it, and a system should be adopted of retaining it *in situ* till the trees get big enough to reproduce forest conditions, it being remembered that Hevea is a forest tree.

That this can be done easily enough, has been demonstrated in several places. At Pudukad, there is a big clearing which, no doubt, many of you have seen. This has been protected by a system of contour drains made before the Rubber was planted, and a dense cover of Tephrosia candida has been kept on it. Here, the surface soil has not only been retained, but its original content added to, and during the monsoon the main drains run off clear water. Usually, where a main drain enters a river, one can see at the end of the monsoon a bank of fine silt representing the loss from the estate, and one has seen paddy fields silted up by this eroded surface soil from estates. At Pudukad, no such banks are formed where main drains enter the river at the bottom of the clearing, and the water runs off quite clear

It is sometimes claimed that Rubber grown under these conditions is slow. But the Rubber in the clearing of which I speak, is as good and as advanced as anything in the neighbourhood.

At Kerala and Wandur, I saw some young clearings under similar cover of Tephrosia candia, last June. It will be of the greatest interest to see what has happened to the Rubber in these, after the Moplah rebellion has been put down, and one is able to get back to the estates, beause they will have been totally untouched and neglected for a considerable period. I shall be surprised if it is not found that the Rubber in them is growing quite well.

However, it is the case of old Rubber which is chiefly engaging your attention just now. I am convinced that the amount of weed which can, and will grow in old Rubber in most places can do no harm, and it would be quite safe to leave it until tapping is to be done again. The best plan is to establish a cover of Tephrosia candida, which will grow under the shade of old Rubber, and then to leave it, perhaps, cutting it down just before the hot weather and piling it into the centre of the rows and along the contours on steep lands. The chief danger which I foresee in any practice of this sort is that of fire getting in in the hot weather, and no doubt, some precautions will have to be taken against this.

Where labour is still available to cut over the weed or green dressing from time to time, this might be done, and the material used as a mulch and the roots left in place, to throw up new shoots. The addition of organic matter to the surface soil will be of the greatest advantage to the trees, and no possible harm can be done, I think, by the growth of the weeds, or the cover crop.

The washed soils which are found on most Rubber estates need the addition of organic matter in large quantities to restore their fertility, and probably, more good can be done by establishing green dressing and a mulch than by any possible scheme of expensive artificial manuring.

In connection with this, a great deal could be done by cultivating a leguminous green dressing on waste lands on the estate, and on its boundaries. At the Coffee Experiment Station in Coorg, we have a small strip of waste land between the Coffee and the main road, which before we took it over was weed and cheddy, and this was merely cut over once or twice a year, and was always unproductive and formed a nursery for insect and fungoid pests, which might, under many circumstances, be injurious to the Coffee. On this waste land, we have conducted some experiments with green dressings. Measured areas have been cleaned and sown with a green dressing which was established by means of a few preferential hand weedings, and is now a pure culture. This is cut over three or four times a year, and the resulting material carried into the neighbouring Coffee and spread as a mulch. The main crop used has been Cassia hirsuta, a common leguminous weed in the district, and the results have surprised me, though I expected them to be good. The seed was sown and the crop established in September, 1920. Since then, we have had three cuttings from it, one in January, one in June, and one at the end of September, and we shall probably get another before the next hot weather. The yield has been to date at the rate of 12½ tons of green material per acre. An analysis of this material shows that it contained 0·723 per cent. of Nitrogen, 0·184 per cent. of Phosphoric acid, and 0·773 per cent. of Potash, so that we grew on this waste land 201 lbs. of Nitrogen, 51 lbs. of Phosphoric acid, and 215 lbs. of potash. Now, 201 lbs. of Nitrogen in terms of Ground Nut Poonac are, 1 ton. 5 cwts. and 71 lbs. which, at Rs. 120 per ton, the latest quotation I have for this fertiliser, would be valued at nearly Rs. 154. In addition to this, there is the value of the extra Potash, and the fact that the cost of transport is small. Consequently, it will be seen that waste land can be exploited, and that there are possibilities of considerable monetary advantage from a system of the kind which I have indicated. In the case of Rubber estates, a much heavier yield of green material could be obtained by growing Tephrosia candida than was obtained in Coorg with Cassia hirsuta, and I earnestly recommend this plan to Rubber planters.

Some tapping experiments carried out at the Rubber Experiment Station, Mooply, have an interesting bearing on the subject of restriction. In a leading article in a recent issue of the "Planters' Chronicle," (Volume XVI, No. 42), it was suggested that tapping should cease for three months in the year. This will not necessarily produce a very great reduction in crop, and it depends a good deal which three months are chosen for cessation.

At the Experiment Station, a system was adopted on one plot of not tapping during the heavy monsoon months of July and August, and some interesting figures have been obtained. It may be contended, with a certain amount of truth, that these results are not of a high degree of accuracy, since the plots compared have not been standardised, and individual trees in them give different yields. These are, however, estate conditions, and these plots are just what we have to deal with on estates where individual trees differ largely in yield, and it seems to me that they are the sort of results we may expect under ordinary estate conditions, and that from this point of view, they are of value. If carefully standardised plots were employed for a similar experiment, it is possible a somewhat different figure would be obtained. But, on the other hand this would not be a figure which would be obtained on an average estate, where many different controlling factors are at work, such as, the result of digging, the opening of trenches, catch pits, thinning out, etc. In the plots on the Experiment Station, all these factors, unfortunately, come in, so that they approximate closely to estate conditions. This may not be highly scientific, but it is all we are able to do at present, with our limited space and expenditure. I look to the experiments now being laid down at the Mycological Station to give more precise and scientific results, and it remains to be seen how far these will confirm the results we have so far got.

Be this as it may, the results obtained in this experiment from June 1920 to September 1921 show that, if the yield per 100 trees tapped daily one cut on a third be taken as one hundred, then the yield from alternate day tapping on the same system is represented by 68·4, and the yield obtained by daily tapping, but ceasing during July and August, is 90·9.

The following table shows the details of the experiment :—

		Yield in dry rubber per 100 trees in lbs.		
		Plot 13. Daily tapping	Plot 14. Alternate day tapping.	Plot 16. Daily tapping Rested in July and August.
1920—				
June	...	3·06	1·68	3·375
July	...	14·125	9·31	...
August	...	26·25	15·44	...
September	...	27·81	15·31	29·44
October	...	23·615	15·375	35·81
November	...	39·75	25·50	52·56
December	...	43·31	45·75	45·00
1921—				
January	...	19·75	16·125	19·94
May	...	16·615	6·06	27·56
June	...	28·68	12·615	29·94
July	...	28·19	18·75	...
August	...	17·00	13·50	...
September	...	22·50	17·06	39·00
Total...		310·655	212·475	282·625
Proportions...		100	68·4	90·9

It will be noted in this table that plots 13 and 16 gave fairly comparative results in the months of January and June. In May 1921, plot 16 gave a much bigger yield than was expected, for some reason which I am not altogether able to explain. The result of the rest in July and August appears to produce an increased yield when tapping is resumed; a result obtained both in 1920 and 1921.

There is another point of interest in connection with these systems, and that is, the incidence of Black Line Canker on the tapped areas due to the attack of *Phytophthora Meadii*. The percentage of trees attacked by this disease was found to be in the case of daily tapping throughout the tapping season, 26 per cent., in the case of alternate day tapping 15 per cent., and in the case of daily tapping, but resting during July and August, 12 per cent., indicating that the health of the bark has improved by this system.

In connection with any system of restriction of the tapping season, the question arises as to what to do with the labour. Where tapping is stopped during June, the labour could be employed to take off the fruit, which has been shown by Mr. MacRae and myself to be the only means so far discovered of controlling *Phytophthora Meadii* and the abnormal leaf fall. This is worth the consideration of planters. Could the fruit be removed over large areas and the leaves retained on the trees, it is more than possible that a cessation of tapping from June to August under our conditions in South India would result in no very large decrease of crop, and at the same time, a considerable improvement in the general health of the trees.

The Chairman thanked Mr. Anstead for having given them such interesting information.

EXECUTIVE COMMITTEE.—The Chairman proposed that the existing Executive Committee, consisting of Messrs. J. A. Richardson, J. Mackie and E. H. Halliley be re-elected for the current year, which was carried unanimously.

A vote of thanks to the Chairman proposed by Mr. Mackie was carried, and this terminated the proceedings of the meeting.

J. R. VINCENT,
Chairman.

C. H. BROCK,
Acting Secretary.

[NOTE BY ED. "P. C."—Mr. Ashplant's remarks on restriction and his address on "Thinning out" will be published in full in our next issue.]

NOTES AND NEWS.

Fertilisers.

We welcome this week a contribution from a well known retired S. India proprietary planter on the thorny subject of Fertilisers. In a covering letter to us he says our manures cost far too much, and moreover their prices are being constantly advanced. He says, and we concur, that he can obtain better stuff at a lower price at home, and he, therefore, feels it incumbent upon himself to help others to do the same.

The R, G. A, Local Branch

The Meeting at Cochin, of which the Minutes appear in this issue, was a most instructive one. We regret we are obliged to hold over Mr. Ashplant's remarks on restriction and his much appreciated address on thinning out. These, however, will appear in full in our next issue.

Restriction.

Talking about restriction, reminds us of the figures collected by the Secretary, U. P. A. S. I., of which we give a *resume* below:—

RUBBER RESTRICTION RETURNS.

ACREAGES.

1921.	Tapped Acres.	Not Tapped Acres.	No Return Acres.
January ...	9,046	23,405	10,921
February ...	Nil	32,451	10,921
March ...	11,352	21,099	10,921
April ...	25,069	7,382	10,921
May ...	23,862	7,382	12,128
June ...	21,547	7,382	14,443
Total area represented on U. P. A. S. I.			43,372 Acres.

RUBBER RESTRICTION OUTPUT.

1921.	Estimated as Normal, lbs.	Actual Crop. lbs.
January to June	1,879,264	1,136,715

RUBBER SHIPMENTS FROM S. I. PORTS.

1921.	Tons.
January	638'45
February	443'55
March	117'70
April	242'40
May	241'10
June	173'60
July	57'45
August	268'12
Total...	2182'37

Note :—	Lbs.
Shipped from March to August ...	2,464,000
Crop Returns. January to June on about 30,000 acres	1,136,715
Excess of shipments over Returns received...	1,327,285

SOUTH INDIA RUBBER AREA.

	Dept. of Statistics as on 31-12-19.	Represented on U. P. A. S. I., 1921.
	Acres.	Acres.
Madras	13,900	11,311
Coorg	2,680	nil.
Mysore	413	280
Travancore	36,018	23,755
Cochin	8,784	8,026
Total...	61,795	43,372

Rubber Shipments.

It will be noticed that the output returns are for January to June, whereas the shipping figures are detailed to show exports from March to August. This is in order to make them more accurate in comparison, as January crops are not shipped much before March, and June crops until August.

Brown Bast.

We have received a copy of "Brown Bast" by Sanderson and Sutcliffe (The Rubber Growers' Association, London) which we hope to review in a subsequent issue. We are asked by the Secretary, U. P. A. S. I. to say that copies can be obtained from him, price Rs. 4-8-0 to members, and Rs. 6-8-0 to non-members, post free.

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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SOME NOTES ON SPACING AND THINNING OUT.

We announced last week the publication in this issue of Mr. Ashplant's address to the local branch of the R. G. A. at Cochin on 26th October. It is proposed to issue the proceedings as a separate pamphlet when Mr. Ashplant's complete remarks are ready. We are only able in this issue to give the first portion of his address on "Spacing and Thinning Out." The rest will be published next week, when the proceedings will also be issued to members.

Mr. Ashplant said :—

Thinning out is looked upon by certain people as an evil—a necessary evil perhaps as long as faulty planting methods are practiced, but an evil which could and should be avoided by the adoption of better spacing arrangements. According to Mr. Petch "it is almost inconceivable that anyone should now deliberately adopt a planting method which involves extensive thinning out......When one considers the dangers of root disease, ...and the general unsanitary conditions of the estate owing to close planting, it is indeed difficult to imagine that anyone would wish to repeat the experience."

Now whatever may be urged by Mr. Petch against close planting, to the writer and to most practical planters the proposition that the first spacing should be the permanent one, and that no more trees should be planted originally than an acre of land is capable of sustaining twenty years after planting is equally inconceivable.

One of the reasons for the insistence on wide planting is the belief that when the trees are widely spaced, most of the diseases to which Hevea is heir would disappear.

Would that it were true!

We have unfortunately to confess that the problem of rubber estate hygiene is much less simple. A real live Nemesis-like disease, which will devastate densely planted and neglected estates and leave unscathed such estates as have obeyed the rules of good sanitation has not yet appeared. The predisposing conditions of two most serious diseases of Hevea—Brown Bast and Secondary Leaf Fall are in the one case a physiological disturbance set up by tapping, and in the other, an excessively wet climate. For neither of these, nor for Fomes, which is the next affliction of first rank, can it be truly alleged that wide planting is a preventative, or thinning out a remedy. So far as Brown Bast is concerned, indeed, the contrary might be urged. All the evidence goes to show that this disease is quite unaffected by cultural conditions. We know that some trees are much more susceptible to Brown Bast than others. This being so, the presence of an excessive number of trees per acre may be advocated as a form of insurance.

With regard to Pink disease and Stripe and Patch Canker, the assumption that close planting is the root of these evils is only partially true. In so far as wider spacing promotes the more rapid drying up of the tree trunks after rain, and leads to the better ventilation of the plantation, risks from infection by the damp-loving parasites which cause these diseases will, of course be lessened, and in its early years a widely planted area should be relatively free from bark rots. Since, however, one expects by better spacing to produce trees of twice the size, and with twice the foliar spread of densely planted trees, the dank conditions essential for successful fungal infection will eventually produced even by this method, and the disease problem is only deferred. One need not consider here the case in which the trees are so widely dispersed as to have, when adult, large spaces all around them, for this will not be a commercial proposition until a plantation can be set out with stock of guaranteed high yielding quality.

While admitting that relative freedom from bark Cankers would be attained for a while by wider spacing, there is, then, no justification for the contention that our plantations can be rendered permanently immune to these diseases by any such simple modification of our planting methods. Wherever the climatic conditions permit of the successful exploitation of Hevea, there also will be found to flourish most of the fungi which have been discovered to parasitize upon it. It is impossible to create a rubber plantation which will be remunerative, without at the same time creating as well those damp forest conditions which favour fungal infection. The better grown the trees, the greater, other things being equal, is the risk of Phytophthora bark diseases, and it is one of the ironies of rubber planting that well developed estates show a greater percentage of Stripe and Patch Canker than estates on which the growth is poor. The writer has seen two countries where the Hevea is almost free from fungoid diseases. In neither of these has rubber been a commercial success.

OBJECTIONS TO WIDE SPACING.

Having dealt with the fallacies in the mycological argument for wide planting, we may consider for a moment the case against it.

The best known and most obvious objection to wide spacing is a financial one. It has been found in practice that estates which have been planted up 24 ft. by 24 ft., or 30 ft. by 30 ft. do not reach the dividend-earning stage until much later than closely planted estates. If the better chances of nutrition afforded by the wide spacing so enhanced the milking powers of the trees that they subsequently more than made good any loss from deferred revenue, this objection would not be serious to those people who can afford to wait. There is, however, no reason for supposing that this would be the case. Better facilities for nutrition would certainly produce a bigger tree, and to the extent to which the area of cortex available for tapping, and the development of laticiferous tissue we augmented, there would be an improvement in the yield. That it is possible by nurtural modifications to increase the yielding powers of a tree beyond a certain point may well be doubted in the light of experience with manuring, and in view of the established connection between anatomical structure and yield. Trees are high yielders or low yielders in virtue of their construction and constitution, and we can no more convert a poor milker into a good milker by cultural methods than we can, by taking thought add a cubit to our stature.

Although there is much in the objection just stated, the most powerful argument against wide interval planting is not so much the deferment of the paying stage, or the desirability of having a safe margin of trees as an insurance against depreciation from Brown Bast, as the uncertain milking qualities of the stock which we have to employ. Out of every collection of seeds or seedlings, some are potential half pounders, others five pounders, and others again ten, thirty, or even fifty pounders, while there are all grades between.

There are indications that some day it may be possible either by seed and graft selection, or anatomical investigation in the nursery, to spot the potentially good yielders at an early stage, and only plant up first class stock. When that day arrives the planting can be of so wide a character as to give every tree ample space for development. At present there is no practicable method of distinguishing good milkers from poor milkers until the trees have reached a tappable age, and the only way of securing a proper proportion of high yielders is by planting up many more trees than will eventually be needed and thinning out the poor milkers as they are discovered.

We see, therefore, that the over-stocking of estates by the pioneers, far from being a mistake was and still is the method of planting, which offers the best prospects of success. Where the early planters went astray was in their failure to take timely steps to get rid of the surplus trees. It is now evident that thinning out is not merely a temporary palliative for the errors of former days. It is on the contrary, as essential a part of rubber estate practice as measures for preventing soil loss, or disease treatment, and is likely to remain so as long as caution and our ignorance of the future yield value of a tree dictates close initial planting.

Admitting the desirability of close planting and thinning out as a deliberate policy, one may now consider the practicability of thinning by yield selection.

SELECTIVE THINNING OUT.

The yields given by the different trees on any estate show enormous disparities. It has been stated that 75% of the rubber harvested is obtained from 25% of the trees. The remaining 25% of the crop, it might be further stated, is mostly drawn from a minority of the other trees. In all parts of an estate a few trees are found which are consistently giving out from a half to three quarters of a cup of rubber daily throughout the year, or, expressed in another way, from 5 to 12 lbs. of dry rubber annually. Right alongside these trees are others of the same age which scarcely ever yield more than a table-spoonful of latex on their best days, while for the whole year, their production of actual rubber is something in the range of half a pound. These differences in productiveness are permanent. Trees of the former class remain good yielders from year to year. Poor yielders remain poor as long as they are in normal health, and any considerable rise in productiveness on their part is an unfailing sign of disease.

The presence of so many small producers on an estate keeps the working costs high, while their retention year after year where the planting has been close seriously retards the healthy development of the better-class trees. Sooner or later, this overcrowding puts a limit to the productiveness of the estate, and the crop, after remaining stationary for a year or two, slowly begins to decline.

The various thinning-out experiments which have been conducted on rubber estates have led to somewhat erratic results, and this is necessarily so. Clearly everything depends upon the skill with which the trees destined for removal or retention are selected. If, as frequently happens, the selector is largely governed by considerations of spacing, and removes trees regardless of their yielding value, the output of an estate may be adversely affected for years. If on the other hand the thinning is done less on a positional than on a yield basis, the immediate drop in output will be small, and will speedily be made good by the improvement in the yielding qualities of the trees retained.

As an instance of what can be done under estate conditions by the selective removal of low yielders, a small experiment carried out by the writer a few years ago in Sumatra, may be quoted.

From an area of 12-year old rubber carrying 104 trees to the acre, it was decided to remove 30 trees per acre. Three plots of 1,000 trees each were chosen, and the poor yielders designated by special marks.

Circumstances unfortunately prevented a long preliminary trial of the plots, and comparisons of the three plots before thinning had to be limited to about three months. A series of preliminary records for this period indicated the relative position of the three plots to be as follows:—

Plot A.	Plot B.	Plot C.
100.	87.	95.

Immediately after thinning, the yields from plots B and C, which were thinned down in each case from 1,040 to 740, declined, their position relative to control plot A, for the three months following the loss of trees being :—

Plot A.	Plot B.	Plot C.
100.	80.	84.
	−8 % decline.	—11½ %.

There was little alternation in the position of the plots until about seven months after thinning, when recovery set in. From this time onwards the outputs from the thinned plots steadily improved and, within nine months, were back at their old position. In May 1918, less than a year from the date of thinning, plot B was giving higher yields than before the loss of trees, the comparative figures for the three similar months of 1918 being :—

Plot A.	Plot B.	Plot C.
100	95.	95.

With slight fluctuations, this position was maintained throughout 1918—1919, and at the end of 1919, when the writer's observations ceased, there was no sign of backsliding in the yields of the thinned plots.

Leaving out of account the improvement in the health of the trees through the removal of injurious competitors, the point of commercial importance in this experiment is that within a year of the thinning not only was more rubber harvested from 1,480 trees than was previously obtained from 2,080 trees, but that owing to the use of fewer tappers and proportionately fewer cups, spouts, etc., this rubber was harvested for a little more than two-thirds of the former cost.

This result, it should be pointed out, was obtained from an area distinctly unfavourable for a thinning experiment, the trees thereon having been permanently injured and dwarfed in development by close planting. The trees were over twelve years old at the time, and no thinning to speak of had previously taken place. The sudden removal in one fell swoop, of two-thirds of the trees, had, therefore, a greater influence upon the crop than would have been the case had the trees been removed gradually, and in time.

Reliable figures from estates where the thinning operations have been initiated in time are difficult to obtain. Nearly every estate has commenced this work years too late, Such data as are available, however, show conclusively that progressive thinning out on sound principles from an early stage leads to a considerable improvement in the yield per tree, while the general development, the rate of bark renewal and position as regards disease are markedly better than on unthinned estates.

Coming now to practical suggestions for thinning-out. From what has gone before, it will be gathered that the proper time to commence thinning is within six months after planting out. From thenceforward and until tapping begins, all unfavourable and badly diseased specimens should be removed. Assuming that the original planting is 15 x 15 or 200 trees to the acre, a reduction to 135 or thereabouts is desirable by the 7th year. After the yield values of the trees have been ascertained by trial tappings, thinning can proceed on a yield basis. If the poorer milkers are removed at the rate of 5 to 7 per year, a 15-year-old plantation will carry between 80 and 90 trees to the acre, a reasonable figure.

All this, of course, is very well, and progressive thinning-out, it will probably be granted, is a good policy for such estates as are still young, but what, it may be asked is to be done with mature estates of 10 years and upwards whereon scarcely any thinning has been done, and where the trees have already acquired the drawn up crowns and contracted habit inseparable from prolonged over-crowding. Is it likely that the removal of a certain number of trees per acre will at this time of day benefit those remaining? Further, is it possible, under the stress of actual estate conditions, to grade one's trees in a manner which will be satisfactory without being costly?

There can be no doubt as to the answer to all these questions. The experiments just recorded with 12-year-old trees, as well as others carried out with much younger trees, have demonstrated that selective thinning-out on a yield basis is possible under estate conditions. On old estates, where the problem of selection is complicated by the presence of bark and root diseases, and perhaps also by overtapping, it will be necessary in assessing the value of a tree to take account of many factors, but although an estimate based on yield will often have to be qualified, a knowledge of the yielding capacity of a tree will nevertheless be helpful in coming to a decision as to its retention or removal.

As the yield of a tree is markedly influenced by the quality of tapping, by disease (in the initial stages of Brown Bast the production may be two or three times normal), as well as by many other factors, an estimate of the yielding powers of a tree which is based on a single observation at the time of tapping may be very erroneous. The institution of a system of yield marks is therefore necessary, and is an indispensable preliminary to any rational scheme of thinning-out.

One objection to the classification of trees on a yield basis is the very prevalent belief that actual measurement is necessary. The determination of the volume of latex in each cup by means of a graduated glass is a lengthy and somewhat costly business, and planters have rightly fought shy of it. One has, however, only to consider for a moment the extent of the information sought, to realise that accurate volumetric records of each tree's yield are quite unnecessary, and would, in fact, lead to the collection of so much detail as would be merely burdensome, for even if sufficient easily made signs for each trifling difference in volume could be found, few people would remember them. It may be noted here that whether a tree yields 50 or 60 c.c. and 120 or 150 c.c. is immaterial to the planter. What he wants to know is:—

1. Whether the tree is dry.
2. Whether the tree is a very poor yielder.
3. Whether the tree is a poor yielder.
4. Whether the tree is a moderate yielder.
5. Whether the tree is a good yielder.
6. Whether the tree is a very good yielder.
7. Whether the tree is an abnormally good yielder.

All this information can be gleaned by the simple observation of the cups, and without any recourse to measurement.

For most practical purposes connected with yield, therefore, trees can be divided into seven classes as indicated above. The marks denoting these classes will tell us all we want to know regarding the tree's yielding powers when thinning-out. For ease of marking, and to prevent confusion, it is desirable to have as simple a notation as possible. The following signs,* which can easily be made with a tapping knife have been employed by the writer:—

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* Will appear in the next issue.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT No 23.

1. The Deputy Director of Agriculture, Planting Districts left Coimbatore on 2nd, and paid a visit of inspection to the Rubber Experiment Station at Mooply. Mr. Anstead arrived at Cochin on 6th, and from there went to Mundakayam and Peermade to visit the Mycological Station and inspect the Tea Experiment Station.

2. While at Mooply the opportunity was taken of seeing the work being done with cover crops on the estates. Over 1,000 acres of Rubber are now under a cover of *Tephrosia candida*, and the weeding problem has been solved.

In young clearings the experiments tried with this cover crop have been a great success in every way. An experimental patch of *Indigofera* (probably a variety of *tinctoria*) grown from cuttings obtained from the Wynaad has given a cover in young rubber which compares very favourably with that obtained with *Tephrosia*, and this plant has several advantages over *Tephrosia* such as a lower growth, and the fact that it dies down in the hot weather. The disadvantage is that it is apt to rather mat the soil too much with its roots, and it has yet to be seen whether it will grow under old rubber. The most important point of all with reference to these cover crops is that the surface soil is preserved from wash during the heavy monsoon rains, and an accumulation of humus is being formed.

3. THE EXPERIMENT STATIONS.—At the Coffee Experiment Station the dry weather has continued during the week, only one shower having fallen, amounting to half an inch. Fly picking has been done on several plots, and roads and paths were cleaned up. Work on the drying ground has been completed.

At the Tea Experiment Station cloudy weather with afternoon showers was experienced, the total rainfall during the week being 1·85 inches. 417 lbs. of green leaf were picked from 4·15 acres, a yield of 100 lbs. per acre. Hand weeding was proceeded with, and the plot sown with Daincha was given a preferential weeding. Seeds of green dressings sown last week have germinated.

At the Rubber Experiment Station, Mooply, only 0·13 inch of rain was recorded during the week. Daily tapping was done, and 109 lbs of wet sheet and 18 lbs of wet scrap obtained, a yield of 0·1 lb per tree as compared with a yield of 0·108 lb. last week. Dead wood killed by *Phytophthora* is being removed from the trees and burned. Owing to the bad attack of the leaf fall disease experienced this year there is a large quantity of this dead wood.

At the Rubber Experiment Station, Tenmalai, heavy rain was experienced during the week, a total of 5·38 inches being gauged. On 26th, a shower of 1·95 inches fell in an hour. Daily tapping was done on 395 trees and 68·625 lbs. of wet sheet and 6·938 lbs of wet scrap obtained, a yield of 0·191 lb. per tree as compared with 0·124 lb. last week. Patch canker is still prevalent.

(Signed) RUDOLPH. D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

7–xi–21.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

Coffee in Kenya Colony.

IN THE ANNALS OF APPLIED BIOLOGY, VOLUME VIII, No. 2, recently to hand, Mr. W. J. Dowson writes as follows about coffee and its diseases in Kenya Colony. What is said about spraying for Leaf Disease is of special interest:—

"Coffee growing is one of the staple industries of the highlands of East Africa, and has steadily increased since *Coffee arabica L.* was first planted by missionaries, a quarter of a century ago. Of native coffee, only one occurs in this country, namely, *C. nandiensis*, which is found on the steep banks of rivers at an altitude of over 7000 feet, and is a shade-loving plant. C. ***robusta*** is the native coffee of Uganda. It is to be noted that there is no resting period such as occurs in Rhodesia, where once every year all the leaves fall from the tree. In East Africa coffee is not deciduous, but is continually producing more leaves, rapidly during the rains, much more slowly in the dry season. Both C. *arabica* and C. *nandiensis* are subject to a number of fungous and insect enemies. Meteorological conditions play a most important part in the severity of attack of both fungi and insects, particularly so in the coffee leaf disease due to the rust *Hemileia vastatrix* B. & Br.

So far as the writer is aware, coffee cultivation in the eastern hemisphere, including Africa, has always been intimately connected with that of *Hemileia*, and has usually resulted in the ascendency of the parasite sooner or later. This does not necessarily mean that the coffee trees are threatened with destruction as was the case in Ceylon, but it does mean that *Hemileia* is slowly spreading in all those countries in which coffee is grown, with the present exception of the highlands of East Africa.

The first observation of importance is that only once in Africa and in Ceylon have the teleutospores of the parasite been found. It is a curious and as yet an unexplained fact that since Marshall Ward worked out the life-history of the fungus in Ceylon, and a German observer reported the presence of teleutospores on some African specimens of the disease not long afterwards, these spores have never been observed since. The likelihood, therefore, of the existence of an aecidial stage on some other plant is not very great. Coffee leaf disease, like many other rusts, is propagated in the countries in which it is found by the uredospores only.

The second observation to be recorded is, that the first attack of *Hemileia* is undoubtedly the most severe; subsequent attacks, other things being equal, are less marked in intensity. Nearly all the trees are badly infected, but in well-kept plantations only a small percentage of the leaves actually fall, although the lives of the others are considerably curtailed. Entire defoliation never takes place, and subsequent attacks are less severe, that is to say, not so many postules of uredo-sori are formed, and not so many leaves are infected. That the general health of the trees has much to do with the severity of the attack is obvious when an ill-kept plantation is compared with others better cared for in the vicinity at any season of the year. The initial preparation of the ground, the proper planting of the seedlings, pruning and the amount of berries the trees are allowed to carry, are all factors which influence the resistance of the host.

The third and perhaps most important observation is the effect of altitude, and, therefore, of temperature both on the tree and on *Hemileia*. At the Mission Station of Bura near the coast, at an altitude of nearly 2000 feet, the annual rainfall is about 50 inches, and the temperature about 75—80 °F. both day and night. The atmosphere is therefore warm and moist, conditions favourable to the luxuriant growth of coffee, but much more so to *Hemileia vastatrix* which has destroyed the coffee plantation attached to the Mission. In the neighbourhood of Nairobi the general altitude of the plantations lies between 5000 feet and 6000 feet, and the rainfall of the district averages 30 inches. The atmosphere is therefore dry, although it is to be noted that very heavy dews are precipitated at night, and it is in this dew that the uredospores usually germinate. The temperature is never very high, and rarely exceeds 75 °F., dropping again at night to the region of 50—40° F, and sometimes lower. The atmospheric conditions are warm but not moist, and the general balance of conditions is less favourable to the spread of *Hemileia* than to the growth of coffee. Ten miles to the north-west of Nairobi in the Limuru district very different conditions prevail. The altitude is greater, between 6000 and 7000 feet, and hence the climate is colder on the whole. On the other hand, the rainfall is much greater, averaging between 60 and 70 inches. The atmosphere is saturated in the mornings, and a "Scotch mist" is the normal experience. The climatic conditions at Limuru, therefore, are the reverse of those 10 miles away, and a moist but comparatively colder atmosphere prevails. Coffee under these conditions is not so luxuriant in growth, is slower but more hardy. H*emileia* is prevalent throughout the district, but is scarce; the first attack is the worst as is the case of lower altitudes, but it is nothing like so severe, and in well kept plantations in a normal season the rust has to be searched for.

The conditions then which prevail at altitudes of 6000 to 7000 feet are still favourable to coffee, but very much less so to *Hemileia*, and the limiting factor to the rapid spread of the disease is temperature. At such altitudes the temperature is too low for the parasite to flourish.

It has been pointed out that subsequent attacks of the rust are less severe than the first, which means that the coffee trees acquire a certain power of resistance, or become less susceptible after the initial attack. That this partial immunity is not due to a lessening of the virulence of the parasite is demonstrated by the fact that a hitherto unattacked plantation in the vicinity of others which have been already visited is much more severely infected when H*emileia* is present on all at the same time. The virulence of the fungus remains the same, the resistance of the host increases.

Under such conditions, spraying for leaf disease has proved successful at altitudes of 5000 to 7000 feet. Any dilute fungicide has been found by experiment not only to control the disease, but if applied at the right time to completely eradicate it from plantations. The usual time for spraying is just before the long rains commence, and again at their termination. Reinfection usually takes place in subsequent seasons by reason of wind-blown uredospores from a plantation which has *not* been sprayed. In the Limuru district the disease does such little damage that spraying, always an expensive business, has not been resorted to. The most popular fungicide, and one easily made up, is known locally as "carbide," and is prepared by adding 12 ozs. of calcium carbide to 40 gallons of a solution containing 2 lbs. of copper sulphate in water. At lower altitudes, e g., between 4000 and 5000 feet, spraying with such dilute fungicides is of no avail; but with a stronger mixture containing 4 lbs. of copper sulphate and 24 ozs. of calcium carbide per 40 gallons, the results are much more encouraging, particularly on well cultivated plantations. At such altitudes it is essential to spray regularly to keep *Hemileia* in check. Below 4000 feet, if the rainfall is at all suitable for the growing of coffee, the other factor of temperature is so much more favourable to the rapid spread of *Hemileia* that the disease cannot be controlled by any known method, and on account of this, coffee growing is rendered unprofitable at such altitudes.

(To be continued.)

SOUTH MYSORE PLANTERS' ASSOCIATION.

PROCEEDINGS OF A GENERAL MEETING, HELD AT THE TRAVELLERS' BUNGALOW, MUDIGERE, ON 20—10—21.

PRESENT.—Mr. T. Anderson, Col. W. L. Crawford, D.S O., Messrs. A. Durham, F. M. Hamilton, P. Hunt, L. P. Kent, E. H. Young, and Major A. L. Hill, O.B E., M.C., (Honorary Secretary.)

BY PROXY—Mr. K. R. Krishnaswamiengar.

VISITORS—Messrs. H. H. English, C. Hunt and Major J. S. H. Morgan, M.C.

A letter from the President regretting his absence, due to illness, was read, and Col. Crawford was voted to the Chair for the Meeting.

The Minutes of the previous Meeting were read and confirmed.

(i) Election:—Proposed by the President and seconded by the Honorary Secretary, Mr. J. C. Hamilton was elected a Personal Member.

(ii) Re-election of the Committee in accordance with the accepted recommendations of the Rules Sub-Committee:—The result of the voting was that Col. Crawford and Mr. Godfrey were elected.

(iii) Report of the Delegates to the U. P. A. S. I. Annual General Meeting:—Col. Crawford read the following report:—

REPORT OF DELEGATES TO THE UPASI MEETING.

It has, in past years been the rule for your Delegates to report to you what transpired at the Annual Meeting of the U. P. A. S. I., which to my mind is superfluous and a waste of time, as all members of the Association are furnished with a copy of the Book of Proceedings giving a verbatim report of all that took place there.

This being so, I will not take up your time by going over the same ground again, but confine myself to a few details and general remarks on the matters most interesting to this Association.

BENEVOLENT FUND.—Your Delegates moved a resolution making it optional for the Honorary Secretaries of Associations to collect subscriptions and remit them to the Secretary of the Fund. It is most essential that Honorary Secretaries of local Associations have the authority to canvas for and collect subscriptions and donations for the Benevolent Fund.

INTER-DISTRICT LABOUR RULES.—Your Delegates supported the Shevaroy Association in their resolution, which aimed at the prevention of any neighbouring District sending its Maistries in to recruit their, or for that matter any other Districts Local Labour, resident in villages near the Estates.

RATES OF PAY.—Your Delegates supported the resolution that no Association or Member should raise the pay of coolies without giving six months notice to the Labour Department.

WORKMAN'S BREACH OF CONTRACT ACT.—This Act is likely to be amended to suit present day requirements and passed by the Madras Government, and very likely at no distant date it will be introduced into Mysore.

LABOUR DEPARTMENT.—Mr. Vincent's suggestions for raising further funds for improving and reorganising the Labour Department, with a view to increase its efficiency and usefulness, were supported by your Delegates provided the recommendations and suggestions of the Committee are adopted by District Associations. It is quite obvious that, if the Labour Department is to be developed to its full extent and made as efficient an organisation as we all wish to see it, we must provide more money, and the only fair way to get that money seems to us to be on the lines suggested, that is to say, that those who make the most use of the Department contribute the most to its upkeep.

A vote of thanks to the Delegates was recorded.

(iv) Report of the Delegate to the Dusserah Representative Assembly:—Owing to the absence of the Delegate on account of illness, a report was not available. The reply of the Dewan to the Joint Address presented by the three Mysore Associations was read, and the question of the proposed amendment of Act XIII of 1859 in Mysore arising out of it was discussed.

In his reply, the Dewan said:—"The question of the execution in British India of warrants issued by the Mysore Courts for the apprehension of defaulting labourers and maistries is an important one, and formed the subject of correspondence with the Government of India some years ago. The object in view cannot be secured by legislative action in Mysore, and the Government will be prepared to re-open the question if a detailed statement of the present position, with the necessary statistics, is furnished by the Planters."

The Honorary Secretary was instructed to obtain the necessary figures from the Labour Department, and to supply them to Col. Crawford, who, having been invited by the Government to attend the Select Committee appointed to consider the amendment of Act XIII, undertook to represent the Association's views, and urge the reciprocity of warrants.

(v) Subscriptions to the Association and to the U. P. A. S. I.:—It was decided that, in future, the half-yearly subscriptions to the Association should be payable on the first of March and the first of September each year.

The matter of the defaulting member of the Association the Honorary Secretary was instructed to refer to the U. P. A. S. I.

(vi) Labour Department :—The Circular, dated 21-9-21 from the Secretary, U P. A. S. I., *re* Mr. Vincent's proposals for the Labour Department was discussed in detail, and the recommendations of the Committee were accepted with the following exception :—That the Articles of Association should not be altered until the Commission to report on the Labour Department had reported, and it's report referred to District Associations.

The Honorary Secretary was instructed to inform the U. P. A. S. I. accordingly.

(vii) Proposed Manure Shed at Hassan :—The support accorded to the scheme still being under Rs. 2,000, the Honorary Secretary was instructed to endeavour to obtain further support, and it was decided that, if Rs. 2,200 were obtained, the scheme would be proceeded with.

(viii) The Hayward Memorial :—The Honorary Secretary reported that the subscriptions amounted to Rs 360, and was instructed to remit this sum to the late Mr. C. J. Hayward's brother at Home, asking him to arrange for the erection of the tablet.

(ix) Amalgamation of the Mysore Associations :—At a meeting of the Delegates of the three Associations in Bangalore in August, the following resolution was carried :—" That a Central Committee of the three Mysore Associations be formed, to consist of the General Committee Members of each Association to the U. P. A. S. I., who from their number shall elect a Chairman and Honorary Secretary.

It shall be the duty of the Central Committee to call a Combined Meeting of the three Associations not less than once a year.

The Chairman and Honorary Secretary elected shall conduct the business of the Combined Meeting."

After some discussion, this arrangement was agreed to.

(x) Auxiliary Force, India, Coorg and Mysore Unit :—Major J. S. H. Morgan, M. C., Comdg. No. 1 Coorg and Mysore Motor Machine Gun Coy. explained the Act and the proposed organisation of the platoons and sections, answered questions and enrolled all members present.

(xi) U. P. A. S. I. Buying Agency :—The Honorary Secretary reported that, with the concurrence of the Committee, the Association had become a member.

(xii) The change in the Representatives on the U. P. A. S. I. was reported and explained to the Meeting by which it was accepted. The Representatives are now Mr. Lake and Col. Crawford.

(xiii) Statistics :—The correspondence arising out of the last meeting was read, and the statistics for the year ending 30-6-21, collected by the Government of Mysore and sent to the Association for comment, were shown to the meeting. The Honorary Secretary was instructed to reply that, to render the statistics of value, a simpler form was desirable, and that legislation to enforce collection and the inclusion of all areas were essential.

(xiv) The design for the Association seal was approved, and the repair of the despatch box authorised.

(xv) Col. Crawford asked members to support the appeal of the Chairman, U. P. A. S. I., sent to all in his confidential letter of 10-10-21.

With a vote of thanks to the Chair, the Meeting ended.

(Signed) W. L. CRAWFORD,
Chairman.

(„) C. LAKE,
President.

(„) A. L. HILL,
Hon. Secretary.

NILGIRI PLANTERS' ASSOCIATION.

At a Quarterly General Meeting of the Nilgiri Planters' Association, held at the Collector's Office, Ootacamund, on October the 27th, 1921, the following Members were present:—

Messrs N. J. Stanes, E. Sydenham Clarke, Percy Reed, W. A. Cherry, A. K. Weld Downing, S. C. O'Reilly, W. C. Deane, J. Beaver Vernede, and A. S. Dandison. Messrs. W. G. McFarland, I. C. S. and L. E. Kirwan, visitors. Mr. W. C. Deane was elected to take the Chair for the Meeting.

PROCEEDINGS.

The Chairman opened the proceedings with a feeling reference to the death of the late Mr. S. P. Eaton, murdered by Moplahs in August last, and a vote of condolence and deepest sympathy with Mrs. Eaton was passed, all Members standing.

PREVIOUS MEETING.—The proceedings of the previous Meeting were taken as read, and confirmed.

DISTRICT BOARD'S LETTER RE. LOCAL FUND HOSPITALS, was read, and a definite reply from the Association was postponed owing to interests being inadequately represented at the Meeting.

ELECTION OF OFFICE-BEARERS.—As the attendance at the Meeting was poor, and no one present being willing to accept Office, this was left over for a Special Meeting to be called at an early date. The opinion was expressed that until the collection of subscriptions was undertaken by the U. P. A, S. I., it would be difficult to get anyone to take up the Secretaryship.

INTER-DISTRICT SPORTS FUND.—It was decided that the balance at credit should be paid to Members of the Team, as travelling expenses.

NEW MEMBERS.—Reply was postponed, as it was pointed out that till we were in a position to collect subscriptions, we should be hindering rather than helping the U. P. A. S. I. if we accepted the transfer.

U. P. A. S. I. MEETING.—Delegates' Report was postponed. Books of Proceedings were issued to those Members present.

POLICING OF COFFEE.—It was pointed out that the 15th of October was the date previously advised from which Policing should start.

LIQUOR SHOPS.—The Meeting was of the opinion that these should be closed in Coonoor on Shandy days.

MISCELLANEOUS CORRESPONDENCE.—Other items were left over till next Meeting.

LETTERS REGRETTING INABILITY TO ATTEND were received from Sir Robert Stanes, and Major J. B. Leslie Rogers.

With a vote of thanks to the Collector for the use of the room, and to the Chair, the Meeting terminated.

(Signed) W. C. DEANE,
Chairman.

(,,) A. S. DANDISON,
Hon. Secretary.

The Preparation of First Latex Crepe and Sheet,

BY J. G. FOL, CHEM, ENG.

This article is intended as a short review of the way in which crepe and sheet rubber are made and concerns itself solely with rubber obtained from the Hevea brasiliensis. There are a few other kinds of rubber, such as that obtained from Ficus elastica, Manihot Glaziovii and Castilloa elastica, which are made into crepe, but the amounts put on the market from these sources are so small, in comparison with the total output of Hevea rubber, that one may safely leave them out of account for the purposes of the present article, without being justly accused of gross incompleteness.

The preparation of crepe and sheet starts with the latex, a milky white, sometimes yellowish fluid, which is found in the Hevea brasiliensis in certain cells called latex vessels which are found in the bark. By making incisions into the bark, these cells are opened and the latex flows out. The latex is composed of water, in which, besides very small quantities of other substances such as proteins, sugar, resin and carbonic acid, rubber is found in the form of microscopically small globules, which together form 20 to 50 per cent of the weight of the latex. One generally finds in normal plantations under favourable conditions, contents of rubber varying from 30 to 40 per cent. The object thus of rubber preparation is to separate the rubber particles from the liquid containing them, the serum, as it is called. To this end use is made of a property of the rubber globules, which consists in a tendency to stick together under certain conditions, so that a lump of rubber is formed, which can easily be taken out of the serum. This process is called, coagulation of the latex.

Such coagulation can be attained in Hevea latex by simply leaving it to stand; certain fermentation processes, which take place very rapidly in the tropics, cause the latex to turn sour and the rubber separates itself from the serum. This process is called spontaneous coagulation. The rubber obtained thus, however, does not satisfy the demands, as to outward appearance, now made by the rubber market, so that this method is only used on a large scale on estates, which do not work for the open market, but immediately for the rubber factories

The chemical most generally used to bring about coagulation is acetic acid, which is added to the latex in a diluted form. Other coagulants have been repeatedly tried, especially during the War, such as sulphuric acid, purub (hydrofluoric acid), vegetable acids procured by fermentation, alum, etc , but none of these has been able to take the place of acetic acid as the best coagulant. The same may be said of the numerous methods which have been employed to produce coagulation and which have been so highly recommended by their inventors, but in practice have, as a rule, turned out to be valueless and which are thus to be treated with the greatest caution and reserve.

The latex and the serum, which is left behind after coagulation, offer excellent food material to numbers of micro-organisms, so that in every rubber factory the greatest cleanliness is a prime requisite. If this be neglected in any way, then all the vessels and instruments used to handle the latex and rubber become soiled, which may be the cause of many faults and deficiencies in the finished product. Moreover the decomposing proteins in the serum cause a most unpleasant odour. Plentiful provision of water is thus a necessity for any rubber factory, and the whole installation and building of the works must be such, that this highly desirable cleanliness is easily maintained.

The first process to which the latex, which has been collected on the plantation and brought to the factory is submitted, whether it is to be turned into crepe or sheet, is, that it is sieved. Even with the greatest care, it is impossible to prevent a certain amount of grit, little bits of wood or bark, insects, and so on getting into the latex, and also there is always a small quantity of coagulated rubber floating about in it. All these things are thus removed by straining the latex through sieves of fine copper-wire gauze. This operation is generally done twice, first with a coarse sieve and then with a very fine one.

Sometimes this straining of the latex turns out to be a lengthy operation; at certain times of the year and especially in rainy seasons, when the latex is apt to be mixed with rainwater, it has a tendency to show early signs of coagulation, in the form of a large number of flakes. Much in the same way as ordinary milk behaves when it begins to curdle. These flakes soon block the meshes of the sieves, which have to be constantly cleared or replaced by others, which causes great loss of time. A better way of clearing the latex and avoiding this difficulty has not yet been discovered; experiments with centrifugal machines have hitherto not produced any good results.

The sieves are usually wooden trays with copper wire gauze bottoms. They are placed over the basins in which the latex is collected in the factory, or else connected with these basins by a narrow gutter. These basins have of late often been made of masonry and with glazed tiles.

Differences in the soil, or in the age of the trees, or from other causes, may cause rubber with differing characteristics to come from various parts of a plantation or estate, thus it is considered advisable to mix the latex from all over the estate so as to obtain a uniform product. Sometimes this is done in the receiving basin, sometimes a special mixing tank is provided for the purpose, which is also made of masonry and lined with tiles.

Before proceeding to the coagulation of the latex a process is gone through which is perhaps not so necessary in making crepe, as it is in preparation of sheet, when it is quite indispensable. This process is the bringing of the latex up to a certain standard rubber content. It has already been stated above, that the degree of rubber in the latex may show a considerable amount of variation. This may be further increased in the rainy season, when the latex is diluted with rain-water. As the properties of the rubber after vulcanisation depend partly on the measure of the dilution of the original latex, it is clear how desirable it is, always to have a latex of the same rubber content, in order to make a uniform product. There are also other important reasons, which compel one to observe the same care in making sheet rubber. It is desirable always to make sheets of as near as possible the same size and weight, which in practice is only to be done comfortably, if for every sheet the same quantity of latex of the same rubber content is brought to coagulation.

Besides which, the quantity of acetic acid, needed for the coagulation of a certain volume of latex, is principally determined by the quantity of rubber in the latex, thus the treatment of latex of varying degrees of rubber would often result in mistakes as to the dose of acid necessary, the result of which would be either inefficient coagulation, or waste of acetic acid. In this also several faults in manufacture may be caused. Thus a very great advantage in the use of latex of a standard content of rubber lies in the fact, that one in this enabled to standardise the method of work: every sheet is coagulated from the same quantity of latex of a standard degree of rubber, with the same quantity of acetic acid.

To attain this standard, one must first know what the degree of rubber is in the latex in the mixing basin, which is generally ascertained by a trial coagulation on a small quantity of the latex (one litre, for instance). The weight of wet rubber taken from this is noted and, making allowance for a certain drying percentage, the weight of dry rubber is calculated, and thus the percentage of rubber in the latex. Tables have been formulated on which one can read at a glance the degree of rubber corresponding to a certain weight of wet rubber. On another table one can see how much water must be added to the number of litres of latex in the mixing basin in order to reduce it to standard rate.

Another method of determining the rubber consent is by measuring the viscosity. Instruments based on the principle of the areometre, that is on the determination of the specific gravity of the latex, are however of no use.

The latex thus having been reduced to standard rubber content in the mixing tank can now be converted into rubber sheet or crepe.

In making sheet, the latex is put in oblong, shallow pans, made of wood, zinc or enamelled iron. Into each of these pans, of which there has to a be very large number, an equal quantity of latex is poured. Then, stirring the while, a certain measured quantity of diluted acetic acid is added and mixed thoroughly with the latex by means of a wooden or zinc stirrer. The scum arising during this operation is skimmed off and the trays are left to stand in a cool place free from dust. In some hours time the rubber is coagulated and floats, as a flat cake, in the serum. This cake can then undergo further treatment, which will be described presently, when some variations of the above method of coagulation have been discussed.

It will be clear, that this process—filling the pans, adding and mixing the acid and skimming—will need many hands on plantations with a large output. Thus efforts have been made to simplify it and long shallow troughs used, divided up by moveable boards into ten or fifteen partitions. In each partition one cake coagulates. The trough is filled with latex, the acid added, mixed and skimmed and then the divisions are pushed in. In this way the above named actions only have to be performed once in making 10 or 15 sheets of rubber, instead of so many times over. This of course is a saving of labour and time.

But whether one uses large troughs or small pans, in either case one needs considerable space. To save space the small pans are often placed one above the other, a row of empty pans being placed on top of one which is filled and finished. An objection to this is, that dust from the upper pan is apt to fall on to the rubber cakes below. For this reason they have taken to building large and deep tanks in the Fed. Malay States, these tanks are divided up into a great number of partitions in which the coagulation takes place in such a way, that the slabs of rubber are formed "edge on" thus standing vertically in the tanks. The tanks are made so wide that long shaped strips are formed, which have to be cut into two or three pieces. In this way tanks are in use in which 200 or more sheets can be coagulated at the same time, which means a great saving of space.

We now will proceed with the further processes. On some estates the slabs are left in the pans till the next morning and then handled further. It is preferable however, not to do this, but to continue the operations the same day, as the chances of the formation of air bubbles in the sheet are then less. Thus, as soon as the coagulus is firm enough, which ought to be the case in a couple of hours time if enough acid has been used, one takes the sheets out of the pans. This is most conveniently done by turning the pans over on a table, upon which the slab is rolled by a wooden hand roll in order to give the rubber the necessary firmness. If there is no room at the table, the pans may be turned out in a large tank of water. The rubber floats in the water and one can even lay several slabs one on the other; this cannot be done on the table, as the soft slabs would immediately stick together and be difficult to separate again without damage. One cannot heap them up one on the other until they have been hand rolled and hardened a little; the slabs should be touched with the hands as little as possible.

After the hand rolling the slabs are gradually rolled out thin in a machine, the rolls of which turn at equal speed and can be regulated to a greater or less pressure. On large estates there is a whole battery of these machines, the rolls being adjusted to a succession of pressures which obviates the necessity of making changes in the machinery. Thus the slab, which was at first some centimetres thick is rolled out to a sheet of 4 or 5 millimetres in thickness.

Another machine has rolls which have grooves in them, and perhaps the name of the estate, and the rubber sheet is impressed with these. Generally the pattern is a diamond shape, but sometimes it is several small grooves alternately with a smooth stripe. This pattern is not so highly recommended, as any small faults in the appearance of the sheet are much more apparent in it while the diamond pattern tends to mask them.

The rolled sheets are left a night in clear water, and then hung up on racks the next morning to dry. Then they go to the smoke house, where they stay the next fortnight. This smoke house has two floors. On the ground floor a wood fire is kindled to make smoke, which rises to the floor above where the sheets are hung on racks. This dries the sheets and impregnates them with the fumes of smoke, colouring them brown. Then the sheets are sorted and packed in cases.

The making of crepe is done as follows :—

As one of the demands on crepe making is to obtain a light coloured product, as uniform in colour as possible, a bleaching chemical is added to the latex. For this purpose is used sodium bisulphite, which in conjunction with acetic acid produces sulphurdioxide, which has a bleaching effect. The latex is thus first thoroughly mixed with a small quantity of a solution of sodium bisulphide, after which the acetic acid is added. The next morning coagulation is complete. The mass is then cut up into pieces of a convenient size to handle, which are taken to the mills to be rolled out very thinly into "crepe". These mills are heavy machines, the rolls turn at differing speeds and are grooved, by which the coagulated mass is quickly rolled out very thinly, that is to say the rollers get a better hold on it. Generally these mills are set up in a battery of three or four machines; in the first mill the rolls run at the greatest difference in speed and have the deepest grooves. In the following machines these differences diminish and the grooves are not so deep. The accurate adjustment of the differences in speed and grooves determines to a large degree the capacity of the battery; lack of judgement in this matter may greatly lower the quantity of rubber which can be turned out per hour. In the factories of some large estates they have six or eight of these batteries at work.

After being rolled out, the crepe is hung up for the water to dripp off then it is taken to the drying house where the drying process is completed. After having been sorted according to colour, it is packed in cases ready for export.

Besides this First Latex Crepe, other kinds of inferior quality are made on every rubber estate.

RUBBER TRADE ASSOCIATION OF LONDON.

Monthly Statistics.

OCTOBER, 1921.

Movements of all kinds of Rubber to and from the United Kingdom as per BOARD OF TRADE RETURNS.

IMPORTS.

From	September.			Nine Months ended Sept.		
	1921.	1920.	1913.	1921.	1920.	1913
Straits Settlements and F. M. S. ...	2,719	5,445	2,593	39,948	43,066	18,128
Ceylon and British India ...	1,281	2,089	796	14,864	19,540	5,061
Dutch East Indies, &c. ...	745	617	276	12,698	8,737	1,214
Brazil and Peru ...	129	362	759	1,596	7,054	13,619
Other Countries ...	22	567	1,425	578	2,728	14,248
Total Tons ...	4,896	9,080	5,849	69,684	81,125	52,270

EXPORTS.

To	September.			Nine months ended Sept.		
	1921.	1920.	1913.	1921.	1920.	1913.
United States of America ...	3,348	122	1,579	11,876	24,751	12,798
Canada ...	22	305	31	59	2,932	348
France ...	958	591	351	4,606	10,846	3,542
Belgium ...	114	66	207	794	1,922	1,514
Italy ...	143	58	11	860	2,472	164
Spain ...	20	21	1	104	161	53
Germany, Austria, Hungary ...	705	332	631	5,919	3,385	7,736
Russia ...	...	11	256	163	40	4,761
Sweden, Norway and Denmark ...	5	197	43	604	953	542
Other Countries in Europe ...	399	121	88	1,809	663	923
Other Extra European Countries...	...	82	56	41	969	562
Total Tons ...	5,714	1,906	3,254	26,835	49,094	32,943

LANDINGS, DELIVERIES and STOCKS in London and Liverpool as returned by the Warehouses and Wharves during the month of September.

		Landed for Sept.	Delivered for Sept.	Stocks 30th Sept. 1921.	1920.	1919.
LONDON ...	Plantation ...	4,840	5,470	71,813*	34,991	25,300
	Other Grades...	...	22	362	513	554
LIVERPOOL...	Plantation ...	446†	284†	8,225†	2,170†	2,367†
	Para & Peruvian	590	480	1,220	614	1,030
	Other Grades.,	...	3	457	443	428
Totals London & Liverpool ...		5,876	6,259	82,077	38,731	29,679

† Official Returns from the six recognised Public Warehouses.

* Adjusted owing to stock-taking at various Wharves.

Movements of all kinds of Rubber, excluding Gutta, Balata and Guayule, to and from the U. S. A., AS PER RETURNS OF THE UNITED STATES DEPARTMENT OF COMMERCE.

	July. 1921.	1920.	1919.	Seven Months ended July. 1921.	1920.	1919.
IMPORTS ...	12,342	20,292	23,499	84,645	186,152	146,295
EXPORTS ...	380	126	195	3,002	1,506	1,127

RECEIPTS AT PARA.

	August. 1921.	1920.	1919.	Jan./Aug. (8 months). 1921.	1920.	1919.
Rubber ...	901	1,469	2,190	9,296	15,481	17,165
Caucho ...	410	383	960	3,535	5,333	5,600
Total...	1,311	1,852	3,150	12,831	20,814	22,765

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" COFFEE.

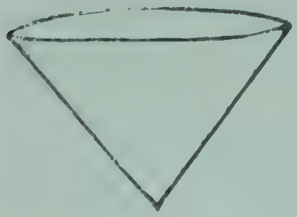
(BY CABLE.)

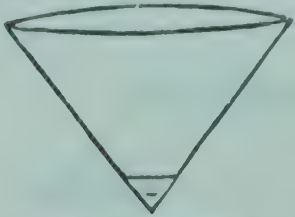
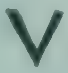
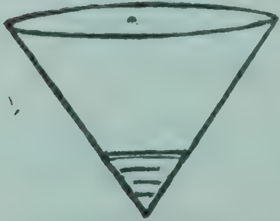
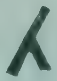
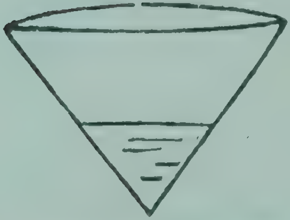
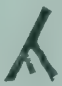
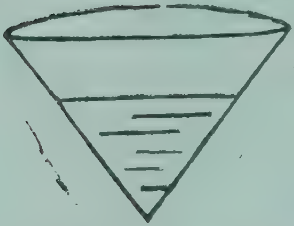
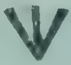
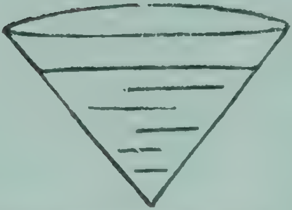
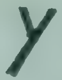
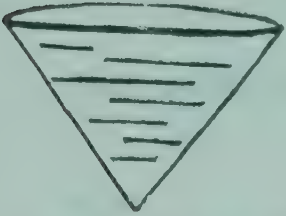
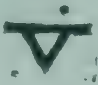
London, 11th November, 1921.

126s,/- per cwt. Market Firm.

SOME NOTES ON SPACING AND THINNING OUT.

(Continued.)

APPEARANCE OF CUP.	DESCRIPTION.	SYMBOL.
	Empty.	Λ

APPEARANCE OF CUP.	DESCRIPTION.	SYMBOL
	Dessert Spoonful. (= 5 — 10 c. c)	
	Small Quarter. (= 10 — 25 c. c.)	
	Large Quarters. (= 25 — 50 c. c.)	
	½-way up Cup. (= 50 — 75 c. c.)	
	¾ way up Cup. (= 75 — 125 c. c.)	
	Full Cup. (= 125 — 200 c.c.)	

These signs are always placed directly above the sector which is being tapped at the time of the observation. It is a good plan to make the first sign fairly high up, so that the others may be made in serial order below. There is no need to go the expense of a special writer for this work. With a little coaching, an intelligent cooly can be trained to recognise the class to which a tree belongs, wherever glass cups or any uniform pattern of latex cup is in use. Where the cups are of diverse shapes and sizes, difficulties will arise, but with practice, these will disappear.

CRICKET.

PLANTERS VERSUS MADRAS CRICKET CLUB.

It will be remembered that a suggestion was made at the last Annual Meeting of the U. P. A S. I. to play a Cricket Match against the Madras Cricket Club, and the Honorary Secretary of the Inter-District Sports Committee has now definitely booked dates with the Honorary Secretary for Cricket of the Madras Cricket Club. The Match will be played in Madras on Tuesday and Wednesday, December 27th and 28th next.

It was originally proposed to play this match the first week in January, a week before the Presidency—Hindu Match which had been fixed for the 13th, 14th and 15th January, but owing to the Prince of Wales' visit it has been found necessary to bring forward the Presidency—Hindu Match to the 6th, 7th and 8th of January. This has necessitated a corresponding change in the Planters' Match, and unless the 27th and 28th December had been accepted we understand the match could not have taken place at all this season.

The Planting Community of South India comprises some very fine players, and provided they can be got together a very interesting game will result. It is possible the date will be found inconvenient for some, but that might be said of almost any other date, and we sincerely hope that players will come forward even at a little personal sacrifice to uphold the honour of the Community. We believe this is the first match of its kind, certainly no such meeting has taken place in recent times, and it would be an immense pity to allow such an attractive fixture to fall through.

We hope to publish nxet week some details of the probable eleven which Mr. J. H. B. Sullivan has been asked to lead.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore,
16th November, 1921.

SECRETARY'S REPORT NO. 35.

No Report was issued last week, as the Secretary was away attending the Harbour Committee Meeting at Tuticorin.

1. BILLS OF LADING.—With reference to Item 4 of Report No. 34, at the Quarterly Meeting of the Association of the British Chambers of Commerce, which was held at Sheffield on the 21st of October, a resolution was passed recording approval of the Hague Rules, 1921, after some opposition. It is presumed that the adjourned meeting of the London Chamber of Commerce will produce a similar result, and hence it is unlikely that any legislation such as was proposed by the Imperial Shipping Committee will be undertaken.

2. MOPLAH REBELLION.—At the requst of members of this Association I wrote to the Government of Madras on the 3rd instant requesting that steps should be taken to keep the Calicut-Vayitri Road open for traffic The Government of Madras replied as follows:—

> "I am directed to inform you that a copy of your letter has been forwarded to the General Officer Commanding, Madras District. It is understood that the embodiment of light Motor patrols to guard the Calicut-Vayitri Road has already been sanctioned, and the Military Authorities have been asked to take such further action as may be feasible and necessary."

In this connection I may mention that Head-quarters, Wellington, have forwarded me a confidential copy of orders issued to ensure protection of this road, and, as far as I can ascertain, the measures taken are proving successful.

3. OBITUARY.—The Secretary of the South Indian Association writes to me as follows:—

> "It is with greatest regret that I have to advise the death, on the 14th October, of Mr. Donald McArthur, the Vice-Chairman of this Association. The funeral took place at Sulhumpstead, Berks, on the 18th instant."

(Signed) C. H. BROCK,
Acting Secretary.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

Coffee in Kenya Colony.

(Continued.)

Of other fungous diseases of coffee, mention may be made of the leaf and berry sport (? spot) due to the attacks of *Cercospora coffeicola* B. and Cke-Considerable damage has been caused by this fungus on neglected plantations, and cases have occurred in which defoliation has resulted. On the berries, it is rather more serious from the planter's point of view, as the affected fruits cannot be pulped clean. This trouble is more prevalent during unusually heavy and prolonged rains, but can always be found on ill-cared for plantations either on the leaves at any time, or on the berries as they commence to turn red. The disease is easily controlled by spraying either with the "carbide" mixture mentioned above, or with Bordeaux mixture containing 2 lbs. of copper sulphate per 40 gallons.

Quite recently a berry spot has occurred due to infection by a species of *Septoria*, which in its effects on the fruit is similar to that produced by *Cercospora coffeicola*, but it is not known whether this species is identical with S. *maculosa* (Berk.) Cke. recorded on coffee berries from Venezuela. The disease is more common on low lying heavy soil, and is quite liable to cause considerable damage unless checked by spraying when the berries are still green.

Rot of the roots is not very common, and wherever it occurs usually indicates that the ground has not been properly prepared at the start, and that stumps and roots of native trees have been left in the soil. These are always sources of infection by root destroying fungi, the mycelium of which spreads from the decaying stumps through the soil on to the roots of the coffee trees.

Dieback of the branches is troublesome in certain parts of the country, particularly where the rainfall is more than 45 inches and the soil is heavy. Up to the present this trouble is not fully understood, but among various contributory causes rendering the trees liable to this disease are unhealthy conditions of cultivation, water-logged soil, attacks of *Hemileia*, overbearing, insufficient pruning, and the presence of *Colletotrichum coffeanum* Noack.

Dieback is far more prevalent in Uganda, where the general conditions are not so favourable to coffee as they are in the highlands of East Africa. A very singular dieback of the main stem has occurred more than once in nearly every coffee district, and has so far baffled any attempts to elucidate its true cause. Nearly every case of the disease was reported shortly after a heavy thunder-storm had passed over the plantations, and was at first ascribed to lightning. Circular patches of trees from 20 to 50 in number were discovered with shrivelled and blackened foliage; and there was always one tree in the centre which was more affected than the rest. The least affected were on the outside, and intermediate stages occurred between. The shoots bearing the blackened leaves were dead towards the tips and for some distance down each shoot, including the main stem, the cortex was discoloured and the cambium disorganised. Unless the affected parts were cut well below the discolouration in the cortex, the trees invariably died slowly back to the roots.

On old specimens which had thus died, the cambium had been replaced by a brown mycelium, and very often the fructifications of a *Diplodia* were found on the bark, and always the pycnidia of a *Phoma* and a *Phomopsis*. At one time it was considered that this particular form of dieback was due in the first place to the *Phoma* or to the *Phomopsis*, but the few inoculation experiments which could be carried out did not lend support to this view.

The problem is an interesting one, of some economic importance and calls for a more thorough investigation than has hitherto been possible into the relation existing between the abnormal meteorological conditions, the suddenness of the withering, the rapid disorganising of the cortical tissues and the presence of the three parasite fungi mentioned above.

The insect pests of coffee are more serious than are the parasite fungi, and mention may be made of at least two which have been computed to cause more annual loss than perhaps any other disease to which coffee is subject. The variegated bug, *Antestia lineaticollis* Stal. has been known almost from the commencement of coffee planting throughout Africa. The insect punctures all the young growing parts of the tree, but chiefly the very young flower buds which are formed in whorls in the axils of the leaves. The result is a non-formation of flowers and a proliferation of shoots in their place, thus bringing about an almost total failure to set fruit and causing much additional labour and expense in pruning. *Antestia* also pierces and sucks the green berries, producing a stain upon the kernels which considerably lessens their market value. As is usual with such insects, spraying, either with a stomach poison or a contact insecticide is of no avail. The bug is active, and either hides under leaves and crevices, or flies to the ground, where it becomes invisible owing to its colour. In the past, the usual method of combating this pest was the collecting by hand of the bugs, but recent knowledge of the life-history has indicated a more effective way of controlling the numbers of the insect. The eggs are laid in clusters of a dozen on the underside of the leaves, and are normally pearly white in colour. A large number of eggs are not white but grey, and out of these hatch out, not young *Antestia* bugs, but minute chalcids. Two species of these have been discovered which parasitise the eggs of *Antestia*, and it has been found possible on the Government Experimental Farm near Nairobi to breed the parasites in the laboratory in such numbers as to completely check the increase of *Antestia*. It is hoped in time to be able to distribute the parasite early enough to those plantations which show signs of the pest to prevent the insect from doing appreciable harm.

Another serious insect pest is comparatively new, having first made its appearance in 1915, and is a species of *Diathrothrips* (D. *coffeae* Will.). This minute insect appeared in the dry season of 1915 in clouds, and settling upon the coffee trees of a plantation close to Nairobi, sucked every green part almost dry, producing a conspicuous silvery appearance of the foliage. The trees were entirely defoliated, and in some instances killed. From the Nairobi area the pest gradually spread in a north-westerly direction, and is approaching Uganda. As in the case of *Antestia*, no known spraying fluid is of the least avail, for at the first contact of an insecticide the great majority of insects fly into the air and hover over the trees in a cloud. They cannot, however, stand heavy rains, and shortly after these commence the pest disappears. The insect appears in very large numbers only in a prolonged dry season and then reigns supreme until the next rains clear it off again. Where it originally came from, its life-history, and what becomes of it during the rains, are problems still awaiting solution.

A third pest, which is often responsible for a large amount of replanting, is the cut-worm, a larva of various species of the moths *Agrotis* and *Euxoa* E. *segetum*: is the most common. Newly planted out seedlings are very subject to attack, and are girdled just below ground level. Gathering by hand, and the protection of the young stem by a band of durable substance soaked in grease, are the methods employed in controlling this pest. Baits of chopped grass sprinkled with Paris Green have not proved very effective.

Finally, as regards coffee, it is a point of considerable interest to compare the yield of the East African crop with that of other countries of the East. In the best days of Ceylon coffee the heaviest yield was not more than ½ ton to the acre, and the average was rather below this. In East Africa the average yield is greater; over a ton has been recorded more than once, and ¾ ton to the acre is not considered an excessively heavy crop. Latterly, however, it has been found by experience that the trees do better, are not so exhausted, and are therefore more capable of withstanding disease if the crop is limited to not more than ½ ton to the acre. This can be done by stripping off some of the young fruits soon after they have set."

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT NO. 24.

1. The Deputy Director of Agriculture, Planting Districts, left Mundakayam on 14th after paying a visit to the Mycological Station and one or two neighbouring estates, and proceeded to Peermade to inspect the Tea Experiment Station. From there Mr. Anstead will go *via* Alleppey, Quilon, and Trivandrum to Bonaccord, which he expects to reach on 25th.

2. Some weeks ago an article was published in the "Planters' Chronicle" giving the results obtained in Java with Robusta coffee grown as an inter-crop with Hevea rubber. A small experiment on 20 acres has been tried with these two crops in South India, and the results obtained are given below. The soil is particularly good, and has been preserved from

wash from the first by means of contour drains and cover crops, and the coffee was carefully planted by an experienced coffee planter. Light shade was given to the coffee, consisting of *Leucaena glauca* and Dadap, and it was limed and manured once. The coffee has made a remarkably good growth, and has in no way interfered with the rubber, in fact the latter now needs thinning out, as the trees in the row have begun to interlock. The rubber is planted in rows 24 feet apart, and the trees are 12 feet apart in the row. Between each two rows of rubber there are three rows of coffee, six feet apart, the coffee bushes being planted 16 feet apart in the centre row, and 12 feet apart in the two outside rows. The following results have been obtained on an area of 20 acres :—

				Rs.
1917—18	Cost per acre	...	...	175'40
1818—19	Do.	...	...	58'32
1919—20	Do.	...	...	65'33
1920—21	Do.	...	...	76'19
1920—21	Do.	(Estimated.)	...	57'00
		Total	...	432'24

Total cost for 20 acres for five years ...Rs. 8,644'80

			Tons.	Cwts.	Qrs.	Lbs.	Value.
1919—20	Crop	...		19	3	0	Rs. 4,022'38
1920—21	,,	...	2	10	2	24	
1921—22	,,	(Estimated)	5	0	0	0	3,500'00
		Total ...	8	10	1	24	Rs. 7,522'38

This leaves a balance of Rs. 1,122'42, that is to say the cost of the rubber at the end of 5 years is Rs 56'12 per acre. At least two more crops can be taken before the coffee has to be taken out, and this should reduce the cost of bringing the rubber into bearing to nearly nil, and it need not be tapped till its eighth year, when it should give a good yield. As a result of this experiment it would certainly appear that the use of coffee robusta as an inter-crop for rubber is well worth trying on a large scale, and there is no doubt that, if properly planted and looked after, and if given shade to start with it will grow readily in many rubber districts,

3. THE EXPERIMENT STATIONS.—At the Coffee Experiment Station 1'80 inches of rain were recorded during the week, of which 1'25 inches fell on the night of the 4th. This wet spell has checked the ripening up of the crop.

At the Tea Experiment Station fine weather was experienced during the week, the rainfall being 1'19 inches. 566 lbs. of green leaf were plucked from 4'29 acres, a yield of 132 lbs. per acre. Hand weeding of the green dressing plots was continued. The main drain was cleaned, and moss and lichens removed from the pruned tea on two plots.

At the Rubber Experiment Station, Mooply, heavy rain was experienced, a total of 10'01 inches being gauged during the week. Daily tapping was done, and 134 lbs. of wet sheet and 25'5 lbs. of wet scrap obtained from 1,262 trees, a yield of 0'126 lb. per tree as compared with 0'1 lb. last week.

The small plot of *Centrosema plumieri* being tested as a green dressing has made good growth of late, and is now beginning to flower and form seed pods.

At the Rubber Experiment Station, Tenmalai, light showers fell each day, amounting to a total of 2 53 inches. 66'75 lbs. of wet sheet and 6'125 lbs. of wet scrap were obtained by daily tapping from 394 trees, a yield of 0'185 lb. per tree as compared with 0'191 lb. last week.

(Signed) RUDOLPH. D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

14—xi—21.

WYNAAD PLANTERS' ASSOCIATION.

PROCEEDINGS OF AN ORDINARY GENERAL MEETING, HELD AT THE MEPPADI CLUB, ON THE 2ND NOVEMBER, 1921, AT 2 P. M.

PRESENT.—Messrs. C. E. Abbott, (Chairman), W. G. Craig, P. A. Naylor, B. Malcolm, S. H. Powell, B. M. Behr, B. D. Darkin, W. Morres, T. P. Gauld, A. D. McBain, and J. A. Gwynne, Honorary Secretary.

Proceedings of the last General Meeting were confirmed. The Proceedings of the extraordinary General Meeting were also confirmed, barring the first resolution.

INCORPORATION.—The correspondence with regard to Incorporation from the Secretary, U. P. A, S. I , and Messrs. Harrisons & Crosfield, Ltd., was read, and it was noted that the employees of this Firm could not sign the final Articles and Memorandum of Association until the question of subscriptions from seceding Rubber Estates was finally settled.

INSTRUCTIONS TO DELEGATE.—Instructions were given to the Delegate on the Agenda of the General Committee Meeting to be held at Coimbatore on 28th instant.

SHORANUR-MANANTODDY RAILWAY.—The Meeting was of opinion that the construction of the Olavakod-Manantoddy Railway ought to be proceeded with at once as it is understood that the necessary revenue has been assured, and that its construction would prevent a recurrence of the present rebellion.

STAMPING OF AGREEMENT FORMS.—Read letter from Deputy Collector, and it is to be recorded that agreements under Act I of 1903 must be stamped before execution, otherwise a fine of Rs. 5 will be levied.

LIQUID FUEL.—Mr. Malcolm's letter with regard to the increase in cost of this fuel was read, and it was resolved to submit the matter to the U. P. A. S. I. in order that they could take it up with the Oil Companies, with a view to getting a reduction in price.

THE REBELLION.—The Honorary Secretary reported that he had received a letter from the Collector to the effect that neither troops nor police could be spared to patrol the Calicut-Vayitri Road: thereupon the meeting decided to send the following telegram to the Collector, and a copy of it to the Chief Secretary, Government of Madras.

> "Planters in General Meeting strongly urge that Military outposts be placed at Tamarasserri and Puthupadi to ensure safety of coolies and supplies coming Wynaad and allay panic. Coast labour position being seriously affected and all transport seriously interfered with."

RICE EXPORT.—Read Collector's letter, and it was resolved to ask that he recommend that an order be passed to stop the export of rice from the Wynaad in view of the altered condition now ruling on the Calicut-Vayitri Road.

CORRESPONDENCE.—Read letters from the Secretary, U. P. A. S. I., on the subject of Cooly ticket Credit Note system, and from the Honorary Secretary, Nilgiri-Wynaad Planters' Association on the rates of pay, which are recorded.

With a vote of thanks to the Chair, the meeting terminated.

(Signed) C. E. ABBOTT,
Chairman.

(Signed) J. A. GWYNNE,
Honorary Secretary.

NILGIRI-WYNAAD PLANTERS' ASSOCIATION.

PROCEEDINGS OF A GENERAL MEETING, HELD AT GUDALUR, ON SATURDAY, 29TH OCTOBER, 1921, AT 11-30 A. M.

PRESENT.—Messrs. J. Aird (Chairman), J. S. Nicolls, G. W. Fulcher, L. Garrett, B. J. Blackett, G. A. Rutter, J. H. W. Bradshaw, J. E. Bisset, and F. W. F. Fletcher (Honorary Secretary.)

VISITORS.—Messrs. R. Bentley, F. W. Kendle, J. R. H. Whitla, and R. M. Nicolls.

The Chairman said:—"Gentlemen. Before taking up the agenda, I wish to refer to the tragic death of Mr. Eaton—a planter known to, and esteemed by everyone present here to-day. He was at our last Meeting, and no one who saw him then, full of life and spirits, could have anticipated that his end was so near. He died doing his duty: let that be his epitaph. I ask you to pass a vote of sympathy with his young widow in her terrible bereavement, and our Honorary Secretary to communicate it to her."

The vote of sympathy was passed in silence, all members standing.

REPORT OF DELEGATES.—Mr. Aird read the following report:—"Gentlemen. We attended the Meeting of the U. P. A. S. I. as your delegates from 22nd to 25th August, when the ordinary business terminated. There was a Meeting with Mr. Anstead on the morning of 26th of delegates from Associations interested in coffee, but we were unable to attend this, as, owing to the disturbing news of Moplah troubles on the borders of our

District, we had to hurry back here earlier than was our intention. Fairly full reports of the Proceedings in open Meeting appeared in the daily papers, but as usual, a deal of the important work was done in Committee. The matters on which we had your special instructions were fully dealt with. Our resolution in regard to the need for the early introduction of the Malabar Tenants' Improvements Act to the Nilgiri-Wynaad was passed, and Government is to be again approached through the U. P. A. S. I. Sir Fairless Barber also dealt with this subject, and was good enough to place the latest information before the Meeting. One of the most important matters which came up for discussion was Mr J. R. Vincent's proposal to place the Labour Department's finances in the melting pot, the object being to increase the amount of its income by levying special fees for all services rendered, and a Committee was appointed to go into the scheme during the course of the Meeting. Certain modifications in Mr. Vincent's figures were made by this Committee, but your delegates would have liked to have seen some reference made to the lines on which it is proposed to spend the increased income. No allusion was made to this point in the scheme itself, or by the Committee, but the whole matter will come up before District Associations before anything is decided on. The most obvious objection is that the income will be a fluctuating one instead of a settled one as at present. A Commission to enquire into all labour matters is to be appointed by the Executive Committee, and this will visit recruiting centres as well as the planting Districts, and important results will no doubt accrue. In reply to our representation that Labour Agents should be put into a position to visit planting centres for the purpose of arresting defaulting Maistries working as coolies, we had Mr. Edwin Vincent's assurance that this is possible under present conditions. Members interested can therefore take further action in accordance with this. The North Mysore delegate met our point by inserting in his resolution dealing with increases of pay, the words 'no member'. The Anamallais resolution, conferring on the Executive Committee the power to increase subscriptions to the Labour Department, was strongly opposed by the Meeting generally, and was dropped, but the Commission above referred to will no doubt deal with the point involved. A great deal of discussion took place in regard to the possibility of reducing pay and standardizing concessions to coolies, but nothing very definite was arrived at. The Meeting was of opinion that the U. P. A. S. I. should support local Associations in recovering outstanding subscriptions, but it was recognised that Estates which were derelict were on a different footing from those still carrying on. You will no doubt all have read Mr. Godfrey's excellent address advocating increased interest by the planting body in the politics of the country. He carried the Meeting with him. Mr. Pinches was elected Chairman for the coming year. If there are any other points on which members wish for information, we will be glad to answer enquiries so far as we can."

(Signed) J. AIRD.
(,,) R. FOWKE.

A vote of thanks to the delegates for their services was passed, and payment of their travelling expenses was sanctioned.

LABOUR DEPARTMENT.—Consideration of the new scheme for increasing the income of this Department (embodied in U. P. A. S. I. circular, dated 21st September) was deferred to an Extraordinary General Meeting to be held on 14th November.

U. P. A. S. I, GENERAL COMMITTEE AND EXTRAORDINARY GENERAL MEETINGS FIXED FOR 28th NOVEMBER.—In view of the importance of some of the subjects that will come before these meetings, consideration of the agenda was also held over till the N-W. P. A. Meeting on 14th November, when instructions will be given to the members of the General Committee. With reference to letter No. 4350, dated 24th October from the Secretary, U. P. A. S. I., giving the terms of the special resolution to be brought forward by the Anamallais Association, the Honorary Secretary was instructed in the meanwhile to enquire from the Secretary whether a resolution of this nature could rightly be brought forward for discussion at an Extraordinary General Meeting of the U., P. A. S. I.

SURVEY AND SETTLEMENT.—The Honorary Secretary read letter No. Dis. 175/1921, dated 17th September from the Special Settlement Officer, Nilgiri and Malabar-Wynaads. He was instructed to inform that officer that para 3 (c) of the above letter was not understood, as it had never been suggested that assessment on abandoned coffee should be on a sliding scale on the score that "the planter permits others to pluck the coffee." The Honorary Secretary was also instructed to write to the Assistant Director of Survey, Cannanore, who is said "to be in general charge of the survey party," and point out that an early visit to the Nilgiri-Wynaad would be very advisable, in order that he may see for himself how the survey is being conducted, and that planters may have an opportunity of stating their objections to him in person before the survey becomes irrevocable.

DISTRICT BOARD MEMBER.—The Honorary Secretary read letter R. C. No. 469/21, dated 13th August from the Vice-President of the District Board. It was resolved that, as the appointment of a member to represent the Nilgiri-Wynaad appeared to be within measurable distance, the questions raised in the correspondence with the President could lie over, to be dealt with by the local member on his appointment. On the subject of roads, the Honorary Secretary was instructed to ask for a statement of allotments for the current year. He was also instructed to address the Collector of Malabar through the Collector of the Nilgiris, pointing out that in present conditions the road to Calicut *via* Vayitri and the Tamaraseri Ghat is the only outlet to the port of shipment for produce from the Nilgiri-Wynaad. and hoping that immediate steps would be taken to render transport by this route safe.

INCORPORATION.—The papers received with the U. P. A. S. I. Secretary's letter No. 4257, dated 19th October were signed.

RATES OF WAGES —A matter under this head brought forward by Mr. Fowke was dealt with in Committee. In open Meeting the Honorary Secretary read correspondence with the Wynaad Planters' Association. The feeling of the Meeting was, that, as no Association was prepared to act unless with the assurance that all other Districts recruiting in the same areas would follow suit, the only hope of effecting a reduction in rates was a frank discussion by a joint Committee of all the Associations concerned, and the Honorary Secretary was instructed to see what could be done towards the formation of such Committee,

U. P. A. S. I. SUBSCRIPTIONS.—As this subject is on the agenda of the General Committee Meeting, it was postponed till the N-W. P. A. Meeting on 14th November. The Honorary Secretary read his correspondence with certain members of the Association on matters coming under this head, COMPENSATION FOR IMPROVEMENTS ACT.—The Honorary Secretary read correspondence with Secretary, U. P. A. S. I. ending with letter from the latter, No. 3313, dated 29th September, and said that in this matter hope had been so long deferred that it was not surprising their hearts were very sick. However, it did seem that at long last Government intended to move. Mr. Nicolls laid before the Meeting a letter he had that morning received from Mr. Srinivasa Aiyangar. The Honorary Secretary was instructed to write to the Secretary, U. P. A. S. I. and ask him to point out to Government that we had all along asked for the Act, and had all along been promised the Act, *as it stands*, and without any modification of the date from which it will apply on its introduction into the District.

SHORANUR-MANANTODDY RAILWAY.—There was a discussion on this subject, and the following resolution, proposed by Mr. Nicolls and seconded by Mr. Blackett, was passed :—

> "That this Association, in view of the fact that the survey of the proposed Shoranur-Manantoddy Railway has been completed, requests the Madras Government, Railway Department, through the U. P. A. S. I. to make an early start towards its construction, pointing out that its completion would tend to alleviate the economic and political situation in the Ernad and Walluvanaad Taluqs."

GLENVANS TELEGRAPH OFFICE.—Mr. Aird said there was no Telegraph Office anywhere in the Ouchterlony Valley, and pointed out the great inconvenience and delay all residents there were put to by having to send telegrams from Gudalur, 13 miles distant. He and Mr. Rutter, of Seaforth Estate, were prepared to tender the necessary guarantee if the Glenvans Post Office was converted into a combined Office, and the Honorary Secretary was instructed to address the Superintendent of Telegraphs accordingly.

ELECTION OF MEMBERS.—The following gentlemen were unanimously elected personal members of the Association:—

Mr. E. L. Godley.
Mr. A. Stevenson.
Mr. R. M. Nicolls.
Mr. R. Bentley.
Mr. G. M. Oakes.
Mr. A. Foote.

With a vote of thanks to the Chair, the Meeting closed.

(Signed) J. AIRD,
Chairman.

(„) F. W. F. FLETCHER,
Honorary Secretary.

NILGIRI PLANTERS' ASSOCIATION.

At an Extraordinary General Meeting of the Nilgiri Planters' Association, held at the Collector's Office, Octacamund, on Thursday the 10th November, 1921, the following Members were present:—

Sir Fairless Barber, Messrs W. C. Deane, W. A. Cherry, Percy Reed, E. Sydenham Clarke, G. F. Weston Elwes, J. Beaver Vernede, B. Hawes, O. W. Marden, K. J. Harper, F. H. Farmer, N. J. Stanes, S. C. O'Reilly, P. Beaver, L. F. Lake, A. K. Weld Downing, A. S Dandison and Major J. B. Leslie Rogers.

Mr. Deane was elected Chairman for the Meeting.

PROCEEDINGS.

Before proceeding with the business of the Meeting, the Chairman spoke as follows:—

> "Since our last Meeting, one of our number, Mr. J. Harding Pascoe, of Woodlands, Kullakamby, has passed away. We knew he had been ill for some time past, but his death came as a shock to all his brother Planters and many friends. He was one of the oldest Members of our Association, personally I can recall him in the Seventies, when he came to our District.
>
> "He was one of the leading Planters, one of the best, much liked and respected, his views on planting matters were very sound, and his advice at our Meetings much appreciated and generally followed. He will be sadly missed, but he will be affectionately remembered by all the Nilgiri Planters, and his memory kept green in the annals of the Association.
>
> "To his widow we extend our deep sympathy in her sorrow, and I propose that the expression of the sincere condolence of the Members of this Association be sent to Mrs. Pascoe; and to Sir Fairless Barber we also desire specially to express our sympathy in the loss of his late associate in the Firm of Messrs. Barber and Pascoe.".

1. Proceedings of the last Meeting were read and confirmed.

2. Mr. Farmer was elected Honorary Secretary, and the Association passed a vote of thanks to this gentleman for having taken up this office, and Mr. Harper was also thanked for allowing Mr. Farmer to become Honorary Secretary.

Election of Chairman, Vice-Chairman and Committee resulted as follows.—

Chairman...	Mr. A. K. W. Downing.
Vice do. ...	Mr. J. Beaver Vernede.
Committee ..	Messrs. E. Sydenham Clarke, W. A. Cherry, G. F. Weston Elwes, L. F. Lake, N. J. Stanes, F. H. Farmer, (Honorary Secretary.)

U. P. A. S. I. GENERAL COMMITTEE.—Mr. F. H. Farmer was elected *vice* A. S. Dandison resigned.

3. LOCAL FUND HOSPITALS.—After considerable discussion, the following resolution was proposed by Mr. Vernede and seconded by Mr. Elwes, and carried:—

> "With reference to the suggestion that Estates subscribing to the N. P. A. should support the Local Fund Hospitals, it is proposed that it should be optional to Estates that subscriptions be made either on an acreage basis, or, that an enhanced rate be charged for making use of the Hospitals for imported Labour."

4. U. P. A. S. I. DELEGATES' REPORT.—Books of Proceedings having been issued to all present, it was not considered necessary to read the Report in full, and certain matters having been further explained by the Delegates, a vote of thanks was passed to them for having represented the Association in Bangalore.

5. Mr. J. B. Vernede proposed and Mr. W. A. Cherry seconded that Attikan and Honnametti Estates be welcomed as Members of the N. P. A., and the Honorary Secretary be instructed to correspond with parties concerned. Carried.

6. DELEGATES TO U. P. A. S. I.—Committee Meetings were instructed on various items on the Agenda, and were asked to see what could be arranged *re* the Collection of Subscriptions from Coimbatore, and in this connection the following resolution was proposed from the Chair and carried unanimously:—

"That this Association is in favour of the present office allowance being raised from Rs. 25 to a sum sufficient to allow the employment of a full time Clerk in the Honorary Secretary's Office, and that the Honorary Secretary should for the present carry on the collection of subscriptions until such time as arrangements are made for them to be collected from Coimbatore."

The Association expressed itself in favour of Mr. Vincent's proposals (*re* the Labour Department) as amended by the Committee, and were not in favour of any alteration in Articles of Association till the 5 year contract has expired.

7. GRAIN ACCOUNT.—It was decided to pay Messrs. T. Stanes & Co's bill for godown rent at Mettupalaiyam, and any balance over to be paid to the credit of the N. P. A.

8. MISCELLANEOUS CORRESPONDENCE.—Letters from the Secretary, U. P. A. S. I., the Collector of Coimbatore read and recorded. Letter from the Secretary, Bombay Chamber of Commerce was also passed round the table.

With votes of thanks to the Chair, to the Collector for the use of the room, and to the retiring Honorary Secretary, the Meeting terminated.

(Signed) W. C. DEANE,
Chairman.

(„) A. S. DANDISON,
Hon. Secretary.

INDIAN TEA ASSOCIATION.

ABSTRACT OF PROCEEDINGS OF A MEETING OF THE GENERAL COMMITTEE, HELD AT CALCUTTA, THE 25TH OCT. 1921.

BILL TO AMEND THE INDIAN INCOME TAX ACT OF 1918.—A copy of the above Bill had been before the Committee for consideration. They noted that in Chapter X the provisions of the Bill prescribed that the Governor-General might make rules for carrying out the purposes of the Act and for the ascertainment and determination of any class of income; and that *inter alia*, such rules might prescribe the manner in which, and the procedure by which, the income, profits and accounts should be arrived at in the case of "businesses part of the income of which is agricultural income." This provision was a modification of a corresponding provision in the existing Act, and, in view of the Government of India's contention that tea estates are liable to income tax, and of the High Court judgment that they are liable in respect of manufacturing part of their business, it seemed to the Committee that this alteration would strengthen the position of Government. They had consulted Messrs. Orr, Dignam and Co. in the matter, and in a letter of 19th October the latter explained that the proposed new section did not appear to give any wider powers than those conferred in the existing Act. They suggested for the Committee's consideration, however, that a protest might be made against the principle of this form of legislation; for having regard to the obvious difficulties in arriving at a satisfactory method of assessment in the case of tea and certain other companies, such method should be settled only after full consideration, and should form a substantive part of the Bill and should not be left for arbitrary settlement by means of rules. Messrs. Orr, Dignam & Co., also pointed out a new provision in the Bill to the effect that the Governor-General might, by notification, delegate all or any of his powers under the Act to such authority as might be specified ; they suggested that this should be opposed, and that, if the determination of assessments were to be left to rules instead of being embodied in the Act, the power to make rules should be reserved to the Governor-General in Council.

The Committee agreed with the views expressed by Messrs. Orr, Dignam & Co. They understood that the Bengal Chamber of Commerce had appointed a Sub-Committee to examine the Bill in detail, and they decided to address the Chamber on the above points.

PROPOSED LEGISLATION FOR THE PROVISION OF COMPENSATION TO WORKMEN.—This matter was mentioned in the proceedings of last meeting, when a Sub-Committee was appointed to examine the proposals of Government, on which the views of the Association had been invited by the Bengal Chamber of Commerce. The Sub-Committee reported in due course, and the Chamber were addressed in terms of their recommendations. On the general question, it was explained that employees in tea factories were in a somewhat different position from those employed in ordinary industrial undertakings, in that tea factory employees usually belonged to a family, other members of which were employed on the estate either in the factory or on the garden. This being so, it was unusual to have a case of an employee's dependents being solely dependent on him. It was further explained that it was already the custom of tea estates to treat their labour generously in times of sickness or in the very rare event of an accident occurring in the course of employment. While this was so, it was not suggested that any legislation for workmen's compensation should exclude tea factories. The Committee also expressed their views on a number of details in connection with the proposals.

STATISTICS IN CONNECTION WITH TEA.—In connection with the compilation of monthly statements giving information regarding the tea crop—these statements being furnished to the Director of Statistics for transmission to the International Institute of Agriculture, Rome—it was explained in last proceedings that the Committee had asked the United Planters' Association of Southern India if that Association could supply the necessary information regarding South India, and that the Association had replied that the matter would be considered by their Executive Committee. A further letter, dated 27th September had now been received from them explaining that for the present it was not possible to collect information monthly, but that it could be supplied quarterly. The Committee noted the position.

As arranged at last meeting, the Committee had asked the Planters' Association of Ceylon whether the latter were compiling monthly information regarding the position of the crop in Ceylon with a view to similar information regarding Indian crop being exchanged with them periodically. Letters of 6th and 19th October had now been received from the Association in reply. In the first of these letters it was explained that the Committee's enquiry was being referred to the Ceylon Estates Proprietary Association as being the most likely body to have the information, and with the second letter there forwarded a copy of the reply from that Association suggesting that the Ceylon Association in London should be consulted. The Committee directed that the position should be explained to the Indian Tea Association (London) with a view to the latter taking the matter up with the Ceylon Association in London.

EXPORTS OF TEA FROM SOUTH INDIA.—In their monthly export circular the Committee include particulars of the exports from South India, the information in this connection being kindly furnished by a firm there. The figures given relate only to the exports from the principal ports while there are also exports from a number of other ports. The Committee have accordingly been in correspondence recently with the United Planters' Association of Southern India with a view to ascertaining whether that Association collects particulars from the other ports. A letter, dated 27th September had now been received from them stating that they were making arrangements for collecting the figures from the numerous small ports but that these were not yet complete; they hoped, however, to be able to furnish the figures as from 1st January. The Committee noted this information with satisfaction.

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(Secretary's Registered Telegraphic Address "U. P. A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" COFFEE.

(BY CABLE.)

London, 18th November, 1921.

126s,/- per cwt. Market Steady.

SOME NOTES ON SPACING AND THINNING OUT.

BY H. ASHPLANT.

(Continued.)

The following is the concluding portion of Mr. Ashplant's address to the R. G. A. Meeting at Cochin in October last. The first portions were published in these pages, it will be remembered, on the 12th and 19th instant.

Continuing on the subject of "Yield Marks" Mr. Ashplant said :—

Trees should be marked for yield, quarterly, if possible, and as this work is of much greater value when done regularly, the marking should be done in the same month in each year. The cost of this work is very little. A good cooly can mark 1½ to 2 tasks, or roughly 4½ acres in the course of a morning. Allowing for payment at the rate of 4 annas per half day. The cost of this marking works out at under one anna per acre. The work is facilitated by arranging that the tappers whose trees are being marked, begin their tapping at a different point each day.

As soon as the trees have been given a number of these yield marks, the systematic elimination of the poor milkers can begin. No fixed rule can be given as to the number of trees to be removed per acre annually. This will vary with the age of tree and character of soil. The relative menace from disease will also have to be considered, and a good margin allowed for safety where much brown bast is present.

It is a wise procedure when thinning is being systematically carried out to programme to drastically prune all the trees scheduled to be removed during the year early in that same year. Such of the condemned trees as are diseased, or are obvious "duds" are better out of the way as quickly as possible, but a few of the better type might well be left until later on in the year. As long as these trees are deprived of most of their lateral branches, they will not seriously hinder the development of their favoured neighbours, while in case of accident to any of the latter, one of the condemned trees can be substituted. The trouble most to be feared in this work is Brown Bast, since this disease appears alike on well-cared-for trees, or neglected trees, irrespective of the width of planting or quality of soil.

Value of Yield Marks in the Control of Disease.

A point worthy of mention in connection with the employment of a system of yield marks, is the value of such marks in the control of brown bast.

In the very early stages of this affection, the brownish discoloration of the cortex, which is so marked a feature of brown bast, and which has given it its name, is not perceptible. At this stage, the only visible symptom of the presence of disease is an abnormal flow of latex. When, without any climatic justification, a tree which has been accustomed to yield one quarter of a cup of latex is found to have increased its yield to half a cup or more, brown bast can usually be diagnosed. Similarly, when a tree which has been observed to yield half to three quarters of a cup, shows a decline to a spoonful or so, brown bast may be suspected. Where there are so many trees to supervise, it is obviously impossible for a rubber planter to remember the yield of any particular tree, but when a system of yield marks is employed, yield changes of the character noted are soon spotted and trees with incipient brown bast can be examined, and if desirable, treated before the disease has become acute.

Are Poor Yielders worth Tapping?

Now although the obvious thing to do with unremunerative trees is to remove them and give the others a chance, one has to realise that at the present time the uneconomic price of rubber barely covers the cost of harvesting, curing and marketing. On few estates is there any margin for anything but the most urgent work.

While the financial difficulty is in most cases absolutely prohibitive of thinning out schemes, there is one step suggested by the foregoing, for which the low price of rubber is rather an argument than an objection, and is, in fact, the writer's excuse for bringing the subject forward at this season. The step proposed is to cease tapping the poor yielders, and harvest the crop of the better class trees only.

Reference was made just now to the fact that most of the output of a rubber estate is obtained from a few trees. A census taken on an estate in Mundakayam showed that out of 11,867 trees,

327 or 2% yielded nothing.
3244 or 28% yielded from half a teaspoonful to two teaspoonfuls* (=3 to 12 c.c.)
5486 or 47% yielded a quarter cup (=12 ccc. to 30 c.c.)
2196 or 18% yielded from 1/3 to ½ cup (=30 c.c. to 50 c.c.)
520 or 4% yielded from ½ to ¾ cup (=50 c.c. to 75 c.c.)
56 or ½% yielded from ¾ to full cup (=75 c.c. to 150 c.c.)

What these volumes mean will best be seen by expressing them in lbs of dry rubber per year, assuming for purposes of calculation a standard rubber content for all the latices. Since the rubber content of latex is affected by a variety of factors ; by the quality and frequency of the tapping, by disease, as well as by seasonal and climatic influences such as leaf fall, or soil moisture, there is a good deal of variation in the density of the latices from the trees on any estate, and it might appear that this lack of uniformity would make any sort of calculation worthless. If the rubber content of the latex varied inversely as the volume, as some people imagine, valumetric comparisons of the latices of trees would, of course, offer no indication of their yield value, for a tree giving, say, 10 c.c. might actually be giving more rubber than a tree from which 20 c. c. are obtained. We know, however, from observations that no relation of this kind exists between volume and density. The latices of trees in the 5 c. c. grade fluctuate under the same influences as those of much better trees, and the belief that low volume implies a high rubber content is no more true than is the converse. This fact is well brought out in some observations made on an estate in Mundakayam which are added as an appendix.

The subject of variability in the quality of latices will be dealt with more fully at another time. It will be sufficient to note here that although these variations cannot be ignored in a scientific classification of trees, the fact that the rubber content of all trees uniformly treated fluctuates during the course of the year around a common mean permits of a standard rubber content being arrived at which is accurate enough for the rough practical classification of trees which we have in view. In South India the average rubber content of Hevea latices throughout a year would appear to lie between 2·5 and 3 lbs per gallon. For purposes of calculation, the standard throughout the year will presently be taken as 3 lbs per gallon, which is rather on the high side.

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*It may be useful to know that :

a tea-spoon holds when quite full : 6 cubic centimetres.
a dessert-spoon do 12 do
a table-spoon do 24 do

In the following table the annual yield in lbs. of dry rubber of trees of different grades is shown when the rubber content is 3 lbs. per gallon. As a matter of interest, similar computations have been made for latices of 2·5, 2·75, 3·5 and 4 lbs. dry rubber content, and are set out alongside :—

Volume of latex per tapping.	Total volume of latex per year.	Yield of tree per year in lbs. dry rubber when trees are tapped alternate days during S. India tapping season.				
		When rubber content is 2½ lbs. per gal.	When rubber content is 2¾ lbs. per gal.	When rubber content is 3 lbs. per gal.	When rubber content is 3·5 lbs. per gal.	When the rubber content is 4 lbs. per gal.
		lbs.	lbs	lbs.	lbs.	lbs.
5 c. c. ...	0·15 gallon	0·37	0·4	0·45	0·52	0·6
10 c. c. ...	0·3 gallon.	0·74	0·82	0·9	1·04	1·2
15 c. c. ...	0·45 gallon.	1·1	1·22	1·35	1·56	1·8
20 c. c. ...	0·6 gallon.	1·48	1·64	1·8	2·08	2·4
25 c. c. ...	0·74 gallon.	1·86	2·04	2·2	2·6	3·0
30 c. c. ...	0·9 gallon.	2·22	2·46	2·7	3·12	3·6
50 c. c. ...	1·5 gallons.	3·72	4·1	4·5	5·25	6·0
75 c. c. ...	2·23 gallons.	5·6	6·14	6·75	7·9	9·0
100 c. c. ...	3 gallons.	7·4	8·2	9	10·5	12·0
125 c. c. ...	3·7 gallons.	9·3	10·24	11·2	13·0	15·0
150 c. c. ...	4·5 gallons.	11·1	12·3	13·5	15·75	18·0
200 c. c. ...	6 gallons.	14·8	16·4	18	21	24·0
250 c. c. ...	7·5 gallons.	18·5	20·5	22·5	26·25	30·0
300 c. c. ...	9· gallons.	22·2	24·6	27	31·5	36·0

MINIMUM QUANTITY OF LATEX WHICH CAN BE PROFITABLY HARVESTED.

Having obtained an expression in pounds per year of the familiar fluid quantities of latex met with daily in the rubber cups, we may profitably enquire what volume of latex a tree has to yield to justify its retention in the tapping round.

In order to permit of an answer to this question, the cost of harvesting rubber from trees of different grades when the tapper's task is 250, 400 and 500 trees has been represented in tabular form below :—

Yield of tree.	Yield per tapper (task = 250 trees).	Cost of tapping and curing per lb.	All direct charges to London.	Total direct charges per lb.		Yield per tapper (task = 400 trees).	Cost of tapping and curing per lb.	All direct charges to London.	Total direct charges per lb.		Yield per tapper (task = 500 trees).	Cost of tapping and curing per lb.	All direct charges to London.	Total direct charges per lb:	
	lbs.	cents.	cents.	c.	d.	lbs.	cents.	cents.	c.	d.	lbs.	cents.	cents.	c.	d.
5 c. c. ...	0·82	54	14	68	11⅓	1·32	33	14	47	8	1·65	27	14	41	7
10 c. c. ...	1·65	27	14	41	7	2·64	16½	14	30½	5	3·3	13½	14	27½	4⅔
15 c. c. ...	2·47	18	14	32	5⅓	4	11	14	25	4	4 95	9	14	23	4
20 c. c. ...	3·3	13	14	27	4½	5·3	8¼	14	22¼	3¾	6·6	6¾	14	20¾	3½
25 c. c. ...	4·1	11	14	25	4⅙	6·64	7	14	21	3½	8·25	5⅓	14	19⅓	3¾
30 c. c. ...	4·95	9	14	23	3⅚	7·9	5½	14	19½	3¼	9·9	4½	14	18½	3
50 c. c. ...	8·25	5½	14	19½	3¼	13·2	3½	14	17½	3	16·5	2¾	14	16¾	2⅚
75 c. c. ...	12·4	3½	14	17½	3	19·8	2⅓	14	16⅓	2¾	24·75	1·8	14	15·8	2⅔
100 c. c. ...	16 5	2·7	14	16 7	2¾	26·4	1·7	14	15·7	2⅔	33	1⅓	14	15⅓	2⅔
125 c. c. ...	20 6	2	14	16	2⅔	33	1⅓	14	15⅓	2½	41·25	1	14	15	2½
150 c. c. ...	24 75	1·8	14	15·8	2⅔	39 6	1¼	14	15¼	2½	49·5	0·9	14	14·9	2½
200 c. c. ...	33	11⅓	14	15·3	2⅔	32·8	1	14	15	2½	66	0·7	14	14·7	2½

In explanation of the above table, it should be said that a tapper's wage is taken as 40 cents, curing and packing as costing 4 cents, while the other expenses incurred in getting a pound of rubber marketed are, as will be seen, set down as 14 cents. The rubber content of latex has been assumed to be 3 lbs. per gallon. None of the overhead charges or expenses of administration have been included, neither has any account been taken of Head Office charges. The reason for the omission is that in this enquiry the point to be decided is whether the yield from certain classes of trees will recompense an estate for the outlay involved in tapping them. Since the salaries and ordinary expenses of an estate will go on whether these trees are tapped or not, all one desires to know is whether the actual direct expenditure involved in harvesting their rubber and getting it cured and marketed is recovered in the price.

To this question, the table supplies the answer. It will be seen from this that at anything like recent prices, the tapping of 5 c. c. or 10 c. c. trees, that is to say trees yielding less than 1 lb of rubber per year is only carried out at a loss when the tapper's task is 250 trees. Where the tapper's task is 400 or 500 trees 10 c.c. trees are just worth tapping, but trees which yield no more than 5 c. c. at their best are unremunerative with rubber under 9d. The continuance in tapping of trees with an average yield of less than 5 c. c. is usually a waste of money and is only warranted in seasons of high prices, and only then if labour is cheap and plentiful.

Other points in the table need no explanation.

On the principle that every little helps, it might, perhaps, be contended that the tapping of poor milkers is worth while as long as the margin between the selling price and the actual direct costs of harvesting and marketing their rubber is large enough to contribute half an anna to the general expenses.

At no time is there much in this point of view, for, with rubber at a reasonable price, the elimination of the poor milkers, usually too long delayed, is desirable, if not of pressing importance, in the interests of the better class trees. When, as at present, the market price of rubber does not permit of low yielders being thinned out it does at any rate not forbid their classification on an economic basis. It is scarcely sound business to continue to spend money day after day in the tapping of trees from which, as has been shown, rubber cannot even be harvested under 1/-.

It is at such times as these that thorough stock-taking would well repay rubber estates. Quite a lot of money is thrown away annually in tapping unremunerative trees. From 7 to 10% of the trees on most S. Indian estates are regularly tapped at a loss. A further 5 or 10% are on the borderland of paying and not paying. The selection and cessation from tapping of these trees is one of the directions in which economy in working costs should be sought at the present time.

APPENDIX.

DRY RUBBER CONTENT OF THE LATICES OF INDIVIDUAL TREES

(Selected at random from a group of trees on a Mundakayam Estate.)

No. of tree.	Volume of latex in c c.	Dry rubber content in lbs. per gallon.	No. of tree.	Volume of latex in c. c.	Dry rubber content in lbs. per gallon.
1	30	3·84	25	33	3·91
2	8	3·39	26	26	3·40
3	6	3·19	27	29	4·11
4	12	3 94	28	68	3·20
5	13	2·89	29	13	4·04
6	40	4·09	30	40	4·53
7	40	3 79	31	26	4·12
8	25	3·79	32	6	4·38
9	45	3·29	33	30	4·31
10	21	3·69	34	14	2·90
11	29	3·01	35	27	2·50
12	25	3 03	36	5	4·29
13	50	3·29	37	30	3·74
14	12	3·82	38	45	3 73
15	43	3·20	39	16	4·65
16	4	2·99	40	11	2·99
17	3	2·99	41	8	2·88
18	2	2·92	42	12	3·14
19	3	2 99	43	15	3·23
20	22	2·79	44	56	4·61
21	26	4·10	45	50	3 90
22	7	4·21	46	26	3·82
23	6	3·91	47	40	4·75
24	44	2·84			

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore,
23rd November, 1921.

SECRETARY'S REPORT No. 36.

1. RUBBER MYCOLOGIST.—With reference to the resolution passed at the Executive Committee Meeting on the 21st of August last, in accordance with which the Government of Madras was asked to pay the expenditure on the salaries, allowances, etc., of the Rubber Mycologist and his Assistants during the present period of depression of the Rubber Industry, the Development Department, Government of Madras, have issued the following G. O. No. Mis. 2134, dated 16th November, 1921 :—

> "The Government have given their careful consideration to the request of the United Planters' Association of Southern India, conveyed in their Secretary's letter read above, but regret that they are unable to accede to it."

(By order of the Government, Ministry of Development.)

2. LABOUR DIVISION.—At the request of the Central Travancore Planters' Association, the Acting Director has been considering the advisability of transferring the Labour Agencies in the Koilpatti Taluk from the Srivilliputtur Division to the Palamcottah Division. Now, that the Headquarters of the former have been removed from Madura, it is far easier for the Superintendent of Palamcottah to superintend these Agencies. Arrangements have therefore been made for the transfer of the two Agencies in the Koilpatti Taluk to the Palamcottah Division, as from the 1st of December, 1921.

(Signed) C. H. BROCK,
Acting Secretary.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT No. 25.

1. The Deputy Director of Agriculture, Planting Districts left Peermade after paying a visit of inspection to the Tea Experiment Station, and reached Alleppey on 20th. Mr. Anstead proceeded from there on a visit to Bonaccord, Poonmudi, Merchiston, and Mahendragiri Estates, and expects to reach Quilon on 4th December.

2. FLOWERING OF HEVEA.—In the Agricultural Bulletin of the F. M. S. IX. 1. there is an interesting article on the flowering and fruiting of Hevea by Dr. Heusser. In the course of this article it is stated that the pollen grains, if placed in distilled water, burst after a few minutes and in a sugar solution at a slower rate, but always in a definite relation to the concentration of the solution. It is estimated from observations on the degree of concentration of sugar solutions that exactly brings about the swelling of the pollen grain, that the cell contents as a result of the absorption of water by the cell wall, exercise a pressure of 20 atmospheres. This leads to the conclusion that the pollen of Hevea is extraordinarily sensitive to water. Owing to this sensitiveness, and perhaps also to a very moist atmosphere, the chances of egg cells being fertilised in regions where there is much rain during the flowering period is greatly reduced.

This is of interest to us in South India, where it is desirable that as little seed should be formed as possible, owing to the subsequent attack of Phytophthora which starts on the fruit and causes the secondary leaf-fall. It is possible that it may account for the scarcity of fruit in some years, and the comparative immunity of some estates from fruit production and the subsequent disease,

3. THE EXPERIMENT STATIONS.—At the Coffee Experiment Station a dry week with no rain was experienced. Chop digging has been done in the hybrid plots, and the green manuring plots have been hand-weeded.

At the Tea Experiment Station, a wet week was experienced, 4·97 inches of rain being recorded. Plucking was done on 3·10 acres, and a yield of 341 of green leaf obtained, or 110 lbs. per acre. Green manures are gradually being established by means of selective weeding. *Crotalaria semperflorens* plants have been put out from a nursery.

At the Rubber Experiment Station, Mooply, fine weather prevailed during the week, 0·7 inch of rain being recorded. *Tephrosia candida* is being sown over the whole Station, a seed rate of 15 lbs. per acre being used, as the seed this year is not very good. Daily tapping was done on 1,262 trees, and 137 lbs. of wet sheet and 22 lbs. of wet scrap obtained, a yield of 0·126 lbs. per tree, the same as last week.

At the Rubber Experiment Station, Tenmalai, a fine week was experienced, 0·37 inches of rain being recorded. Daily tapping was done on 393 trees and 68 lbs. of wet sheet and 7·751 lbs. of wet scrap obtained, a yield of 0·193 lb. per tree as compared with 0·185 lb. last week.

(Signed) RUDOLPH. D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

21—xi—21.

THE SCIENTIFIC DEPARTMENT, U. P. A. S. I.

Some Aspects of the work of the Madras Agricultural Department.

I am often asked by planters what the Madras Agricultural Department does, what is taught at the Agricultural College, what the Farms are for, and so on. In this series of articles I hope to try and answer some of these questions.

In the first place I may state that the Agricultural Department is becoming more and more convinced that the best way of getting in touch with the ryot is, not to establish demonstration farms, but rather to send more demonstrators to the villages. Farms are useful chiefly for conducting experiments, and for testing proposed improvements till they can be confidently recommended to the ryots. The real object of the Department, however, is to persuade the ryot to adopt these improvements, and in order to do this the best plan is to send demonstrators to the villages. The demonstrator is trained at the Agricultural College in the first place, and then given experience on a farm. It is his business to get particular ryots to take up particular improvements. If even one ryot consents to adopt an improvement, his land then becomes an object lesson to the other ryots of his village, and the practice of the improvement soon begins to spread. In this way, by going to the ryots and persuading them to try improved methods for themselves on their own land, the Department is able to spread new methods much faster than by opening a number of farms and waiting for the ryots to visit them. Moreover an agricultural demonstrator can start and supervise improvements in twenty or thirty villages, while it takes two men all their time to run one demonstration farm.

Consider the case of single planting of paddy, an improvement which most planters know of, and about which I am often asked. It is sometimes said that the Agricultural Department deserves no credit for the introduction of single seedling transplantation of paddy, because it was known to the ryots in the Madras Presidency before the Agricultural Department took it up. The fact is that the work of the Department lay, not so much in the discovery of the improvement, but in spreading the knowledge of the discovery throughout the Presidency, and in overcoming the conservatism of the ryots. Even now it is doubtful whether ten per cent. of the ryots of the Madras Presidency have yet learned to practice this method of planting paddy. We find cultivators sufficiently advanced to have installed oil-engines for pumping water and hulling rice, still not adopting single planting, so though the single planting method has been known and preached for a long time there is a lot more to be done in the way of demonstration. Over ten million acres of paddy are cultivated every year, and instead of using sixty Madras measures of paddy seed to transplant an acre, ten Madras measures could be used. This, were it universally adopted, would result in a saving of five hundred millions of Madras measures of paddy seed, which could be used for food. If the efforts of the Agricultural Department have introduced the improvement over only ten per cent of the total acreage there is a gain to the community of fifty millions of Madras measures of paddy every year, which helps to justify the existence of the Department.

Another important part of the work of the Department is to teach the ryot to grow green dressings in his paddy rotation and so become independent of leaves obtained from the forest reserves. This has been the subject of a recent enquiry by Government, and it was pointed out that there are three stages of advance in the history of cultivation in India.*

" The first and most primitive method is that of clearing and " burning an area of forest and raising one or two crops in the clearing, " and then moving on to repeat the operation elsewhere as soon as the primitive fertility is exhausted. This method is extraordinarily wasteful, and with increasing population soon results in the destruction of large areas of forests. It was probably once widely spread in Madras, but has now become rare."

Planters will be familiar with this primitive method of agriculture, since it is still to be seen in some of the hill districts where hill tribes have the right to carry it out. Forest is not cleared and burned in this case, but grass land is taken up, cultivated for a year or so, and then abandoned for fresh land. This form of cultivation was well suited to wandering tribes when the world was young and the population small. The result is soil erosion and a patch of infertility which it takes Nature a long time to repair.

At the second stage settled cultivation replaced shifting cultivation as the population increased and communities were formed to settle in one place instead of wandering.

" But the ryot still relies on the forest for replenishing the fertility of his cultivated lands. This is done either directly, by removing leaves and bushes from the forests, or indirectly, by grazing cattle and goats in the forest and applying their manure to the cultivated fields. As population increases, and with it the area cultivated, a stage is reached at which the forest areas which are left begin to deteriorate rapidly. The process is an accelerating one. As the area of cultivation expands, the area of forests must diminish, and the demand on this diminished area becomes greater and greater."

If this process were allowed to continue unchecked, the ultimate result would be the destruction of all forests. In a district like Attur (Salem) for instance, there are 14,810 acres of wet land under cultivation, and each acre requires four acres of fully stocked forest to yield sufficient leaf for manuring. The total area of forest in this district is only 57,758 acres, so that the whole forest would not be able to meet even a year's demand for leaves. For the permanent supply of leaf manure a forest area of 200,000 acres would be necessary. Hence we see the need for Government protection of forest areas as the agricultural population increases and settles down, and the necessity of a Forest Department.

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*Report by C. C. of Forests and Director Agriculture. 10. iii 21.

(To be Continued.)

(Signed) RUDOLPH D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

SOUTH TRAVANCORE PLANTERS' ASSOCIATION.

PROCEEDINGS AT THE GENERAL QUARTERLY MEETING, HELD AT QUILON CLUB, QUILON, ON SATURDAY, 5TH NOVEMBER, 1921, AT 10 A.M.

PRESENT.—The following members and visitors were present:—Messrs. J. B. Cook (Chairman), Ross, Mackie, Lord, J. L. Hall, McPherson, Jackson, Gillespie, White and Pryde (Honorary Secretary.)

VISITORS.—Messrs. E. Hall, Moore and C. J. Hall.

MINUTES.—On the motion being put by the Chairman the notice calling the meeting was taken as read, and minutes of the Extraordinary Meeting, held on 13th August, 1921, were confirmed.

HONORARY SECRETARY.—Mr. J. R. N. Pryde then resigned the Honorary Secretaryship as he is leaving for home, and Mr. Thos. L. Jackson was elected.

BANGALORE DELEGATES' REPORT.

Gentlemen,—Your delegates attended the U. P. A. S. I. Annual Meeting, and in doing so travelled an average of 1,298 miles each (this does not include mileage while in Bangalore). The Moplah rebellion prevented our returning by the route we went—which was the shortest possible one—so we were forced to come back by Rail *via* Madras and Trichinopoly. Even if we had been able to travel by the shortest route both ways, the average mileage would have been 978 each. From the time of leaving Quilon till our return we spent 5 nights on very noisy steamer and train journeys. These figures are mentioned as some of the members present do not grasp the distance your delegates have to cover in attending the Annual Meeting at Bangalore. They are also given for the benefit of other District Associations, who may have thought we ought to have joined in the sports proposal. It should also be remembered that, although Quilon is the nearest starting point for Bangalore, our nearest member to that town is over 40 miles away.

You have all had the Book of Proceedings, and will see from it that we criticised some of the Labour Department entries in the accounts. The Rs 4,300 due by subscribers to the old Labour Department seems a very doubtful debt. From replies given to us we find that about half this amount is due by members of the present U. P. A. S. I., who decline to pay.

There is a case pending in court regarding the balance, and if it is decided in favour of the U. P. A. S. I., the amount recovered with costs will, we are told, wipe out the whole debt. In the meantime the legal expenses have been charged through the accounts against current expenditure, but this does not make it clear that the Rs. 4,300 plus expenses are not bad debts.

The item of Rs. 9,169 advanced by Labour Divisions on account of various estates was also questioned by us. We were informed that this amount was "considered good," and that the Executive Committee had already given instructions that no money was to be paid out on account of any estate unless the Labour Superintendent had the money in hand. These advances should certainly not have been made, as it was understood that estates requiring maistries on labour had to supply the necessary funds. However, these loans are now stopped: but we quite forgot to ask if the estates that borrowed this Rs. 9,169 were charged interest on the amount.

As a matter of fact we are sorry to say that we doubt very much if this amount can be really termed good. Surely the officials of the U. P. A. S. I. must have known that such payments were irregular, and with this knowledge we should have thought they would have made an effort to recover the amount by the end of the year.

The question of the Koilpatti Taluk being transferred from Madura to Palamcottah division was placed before Mr. Brock, and he suggested that this should be left till Mr. Waddington's return. To make the change at present would interfere with the Madura and Palamcottah annual budget, if the alteration is made it should be done at the beginning of the financial year.

The Anamallai proposal that the General Committee should raise subscriptions when and how they like, met with no support. In this connection—raising more money—Mr. Vincent of Mundakayam brought forward a suggestion to make fixed charges for certain work done by the Labour Department. A special committee was formed to go into the question, and their ideas, as well as Mr. Vincent's proposals, are to be placed before you at this meeting for discussion. It was evident from the discussion that took place at the meeting and from conversations we had with various Delegates that the Labour Department is badly in need of reorganisation. It seems to us that the Department is being run on wrong lines entirely and is costing us more than it ought to, and it is hoped that the proposed commission will bring forward some sound proposal for reconstruction on a much more moderate basis than what appears to have been the idea of the Director in the past.

As we have said details of what took place are published in the Book of Proceedings which you have no doubt all carefully read, and there is little more for us to say, but we will be pleased to answer to the best of our ability any question that any member may wish to put.

The delegates were accorded a general vote of thanks by the meeting.

MR. VINCENT'S LABOUR DEPARTMENT REVENUE SCHEME.—After a long discussion it was proposed by Mr. Jackson and seconded by Mr. Ross:—

"That this association has carefully considered Mr. Vincent's proposals and the report of the special committee appointed to consider them and decide that they cannot agree to any further subscription or cesses being raised in any way whatsoever." This resolution was carried unanimously.

SUBSCRIPTION TO "UPASI".—This subject was fully discussed, and it was proposed by Mr. Jackson and seconded by Mr. McPherson:—"That this association after discussion consider that all mature rubber area from which no crop is being harvested should be exempt from all cess to UPASI," and a further proposal by Mr. McPherson, seconded by Mr. J. L. Hall:—"That this association supports the resolution passed by the West Coast Association regarding the reduction of expenditure by UPASI" receive the unanimous support of the meeting.

COIMBATORE MEETING.—It was proposed by Mr. Ross and seconded by Mr. Pryde that Mr. Lord should represent this association at the Coimbatore meeting. This was carried unanimously.

LABOUR RATES OF PAY.—As one or two members had not answered the circular letter sent out by Honorary Secretary, it was found to be the opinion of the meeting, after some discussion, that each district or group should combine to rate coolies as uniformly as possible.

SRI MULAM POPULAR ASSEMBLY.—Mr. Jackson was elected delegate, and was asked to bring forward the subject of Roads, Tolls and Communications.

SUBSCRIPTIONS TO BENEVOLENT FUND.—It was decided that the Honorary Secretary should collect these subscriptions at a quarterly meeting.

On some happy remarks by Mr. Mackie, a hearty vote of thanks and good wishes for his forthcoming marriage were accorded the retiring Honorary Secretary.

The meeting closed with a vote of thanks to the Chair.

(Signed) THOS. L. JACKSON,
Honorary Secretary.

NILGIRI-WYNAAD PLANTERS' ASSOCIATION.

PROCEEDINGS OF AN EXTRAORDINARY GENERAL MEETING, HELD AT GUDALUR, ON 14TH NOVEMBER, 1921, AT 11-30 A. M.

PRESENT.—Messrs. J. Aird (Chairman), J. S. Nicolls, R. Fowke, G. W. Fulcher, J. B. Blackett, and F. W. F. Fletcher (Honorary Secretary.)

VISITOR.—The Assistant Director of Survey.

The Chairman said: "Gentlemen.—It is again my sad duty to open our Proceedings by a reference to the death of a well known member of our community. Mr. Pascoe was one of the oldest planters on the Nilgiris, and although not a member of our Association, was known to some of you, and for some considerable number of years past had a business connection with this part of the District. He was a straight man, a good planter, and, as I am personally aware, a good friend. Our community is the poorer for his loss. I ask you to join with me in recording our sorrow at his death, and in requesting our Honorary Secretary to convey an expression of this to Mrs. Pascoe."

The vote of sympathy was passed in silence, all members standing.

LABOUR DEPARTMENT.—A lengthy discussion took place on the scheme for increasing the income of the Labour Department, embodied in U. P. A. S. I. circular, dated 21st September, 1921. The consensus of opinion was that any scheme of this kind was premature and inopportune, in view of the fact that a Commission had just been appointed to investigate the whole question of the present and future working of the Labour Department, and it was within the bounds of possibility that they might be able to make proposals for its reorganisation on lines which would render the present subscription adequate for all purposes, or might even see their way to reducing that subscription. The following resolution, proposed by Mr. Fletcher and seconded by Mr. Nicolls, was passed unanimously :—

> "That our members attending the General Committee Meeting of the U. P. A. S. I., on 28th November, 1921, be instructed to oppose any scheme for raising the income or increasing the expenditure of the Labour Department until the Labour Commission recently appointed have submitted their report."

PROPOSED INTER-DISTRICT LABOUR RULES (circulated with U. P. A. S. I. Secretary's letter No.......dated 22nd October, 1921). These were considered seriatim, and our members of the General Committee were instructed as follows :—

RULE 1.—On this Mr. Nicolls said : —"I have been recruiting labour for many years from areas where, when I commenced operations, no estates were in existence. Will I be forced to give up those connections, now that rubber estates have sprung up in these areas ? If so, will the U. P. A. S. I., find me other connections, and will it refund me my outstanding advances ?" Our Association would agree to the Rule if these difficulties could be satisfactorily surmounted.

RULE 2.—As we have been informed by the Secretary, U. P. A. S. I., that the Labour Department is competent to take action in the ordinary course in cases of this kind, the Rule would appear to be supererogatory.

RULE 3.—We consider that this Rule could not be worked unless every labourer in the country was registered, and certainly no member of this Association would, in any circumstances, accept liability for any action of a Maistry.

RULE 4.—No objection.

SPECIAL RESOLUTION TO BE BROUGHT FORWARD BY THE ANAMALLAIS ASSOCIATION vesting the General Committee with power to raise or reduce the U. P. A. S. I. subscription (embodied in letter No. 4350, dated 24th October, 1921, from the Secretary, U. P. A. S. I.). Our members of the General Committee were instructed to oppose this most strongly.

SURVEY AND SETTLEMENT.—The Assistant Director of Survey attended the Meeting, and the objections raised by several members of the Association to the manner in which the survey now in progress is being conducted were discussed with him. He was good enough to promise to investigate these on the spot.

CORRESPONDENCE.—All important correspondence since the last Meeting was read and dealt with.

With a vote of thanks to the Chairman, the Meeting closed.

(Signed) J. AIRD,
Chairman.

(„) F. W. F. FLETCHER,
Honorary Secretary.

WEST COAST PLANTERS' ASSOCIATION.

MINUTES OF A MEETING, HELD IN THE COCHIN CLUB,

OCTOBER 22ND, 1921.

PRESENT.—Mr. A. C. Morrell (Chairman), Messrs. C. Barton Wright, H. D. Middleton, Messrs. Aspinwall & Co. (per Mr. Jones), Messrs. Harrison & Crosfield (per Mr. Shaw) and P. Y. Champion.

The Chairman before proceeding with the Agenda referred to the great loss sustained by the murder of Mr. S. P. Eaton, and proposed that the Honorary Secretary should write a letter of condolence on behalf of the W. C. P. A. to Mrs. Eaton. Passed in silence, all members standing.

ELECTION OF HONORARY SECRETARY.—Mr. H. H. Tippetts' resignation was read to the meeting. Proposed by Mr. Morrell and seconded by Mr. Barton Wright that Mr. P. Y. Champion be elected Hon. Secretary. Carried.

DELEGATE'S REPORT.—Mr. Morrell's report was read to the meeting.

RESIGNATION OF COMPANIES.—Proposed the Hon. Secretary write and obtain a further legal opinion *re* above. Carried.

REPARATIONS.—Proposed the Hon. Secretary write to the U. P. A. S. I. and obtain full particulars as to steps taken on above subject. Carried.

INCORPORATION.—Postponed until revised Articles of Association received.

MR. VINCENT'S SUGGESTIONS RE. LABOUR DEPT.—(1) This Association agrees to the Committee's recommendations *re* above with the alteration of 15% to 10% under Item B (2).

(2) This Association is very strongly opposed to any alterations whatsoever in the Articles of Association.

Passed that the General Committee be instructed to alter the word "abandoned" to "revenue yielding areas closed down."

With a vote of thanks to the Chair and the Cochin Club, the meeting terminated.

(Signed) A. C. MORRELL,
Chairman.
(„) P. YORK CHAMPION,
Hon. Secretary.

INSECT PESTS.

There are always bomb shells being thrown about. A scare was created some time ago by a statement from California, that all present efforts in the control of insect pests would be set at naught soon because, owing to the quick generations of such minute insects, they would soon evolve strains proof against sprays and proof against their natural enemies.

There is possibly something in this, but it is mostly humbug. Even though generations of such low forms of animal life are quick, it is quite as clear that the enemies are on an equal plane, and their tastes and appetities would follow suit; they would not starve. And surely the brain and skill of man can evolve, invent and prepare new concoctions equal to deal with insects.

The war taught us how quickly the brain of man could invent means, machines, and instruments of destruction, to destroy mankind. Then what about an insect!

Here is the " fool-fool" paragraph :—

" Something of a sensation has been produced among Californian fruit growers by the suggestion of the Principal of Entomology of the Washington State College that possibly, under continued spraying with insecticides hardier strains of insect pests are being produced, which are better and better able to withstand the effects of the poisons.

" In other words," said Professor Melander in his address, " it is possible from a biological standpoint that we are breeding the resistant insects. If there is such a thing as this, it is a big, big thing in the fruit world. A few years ago we were cocksure that sulphur-lime would kill red spider eggs, would kill eggs of the green aphis, and yet I have examined I don't know how many millions of red spider eggs this year and failed to find them dead after being sprayed with sulphur-lime. The same can be said of the green aphis in a good many localities. Whether it is a biological fact that scale and other insects are becoming resistant by a gradual process of weeding out the individuals that are not hardy I do not know; but I do know that some of the standard sprays are not nearly so sure and effective as they used to be. That is the main thing that I wanted to surprise you with at this time. If the biological theory is true, that we are breeding up scales that are resistant to this or that spray, it may be that we shall have to switch our methods of fighting the pests, we will say, every twenty years. We will spray with sulphur-lime; that will be the best for twenty years, and then we will switch over and take up the oil emulsion and spray with that for twenty years until we get a scale that is resistant to oil emulsion, and then come back and switch to the other. Biologically, it is possible to rear up a breed that would be resistant."—*Journal of the Jamaica Agricultural Society.*

WHAT THE SCIENTISTS ARE DOING?

Mr. Anstead has made the suggestion to us that we should publish the monthly reports of the Rubber Mycologist in these pages, a suggestion we have for some time had in mind, and we are indebted to Mr. Anstead for prompting us on the point. Mr. Anstead's own monthly reports to the Director of Agriculture are also forwarded to us, and often contain many interesting points not covered by his popular weekly articles. We propose, therefore, to give a *resume* of the two reports monthly under the above title.

We have before us the reports for August and September, and here we would point out one small disadvantage. These reports are usually a month or more old before they reach us, and although it is seldom they contain nothing of interest it is often the case that during the lapse of one month, the information has been given to our readers in some other form.

Mr. Ashplant's reports are necessarily redolent of descriptions of preparations he is making for work at his station. It can hardly be expected that he should already be in a position to give details of work completed, since his station is so young and all he can possibly have done is to prepare the ground for his experiments and lay down his programme. Nevertheless a lot of useful work has been accomplished, and it is particularly gratifying to us that in the midst of all this preparation he has been able to contribute to these pages such interesting articles as that which appeared recently on Rubber in Malaya, not to mention the very interesting address to the R. G. A. Meeting at Cochin, the concluding portion of which appears in this issue.

Summarizing the Mycologist's report for August we note *en passant* paragraphs on Brown Bast and Patch Canker, subjects on which we are promised further information shortly. The nursery which is to provide material for future experiments in grafting buds from leaf fall resistant trees on to young one-year old plants is a going concern, and such seedlings as had germinated were planted out. We are particularly interested in the Mycologist's remarks on Tapping Experiments. He says:—"The tapping experiment which was commenced early in June on Kuttikal Estate, to ascertain the relative yields and to settle the economy involved in tapping both mornings and evenings instead of confining the tapping to mornings only, is progressing favourably. The records for three months show that afternoon tapping yields approximately 15% less rubber than morning tapping. This means that, when an estate is divided into two sections as was contemplated, and one section tapped in the morning and another section in the afternoon by the same tappers (cutting out all weeding) there is a reduction of output from the whole estate of only 7½%. Since, however, the cost of harvesting this slightly lessened crop is only half the cost of harvesting a full crop, there is a considerable economy in working costs. The great saving in this respect which this experiment has shown to be possible has already been appreciated by the local planters, and several estates have now started the system of morning and afternoon tappings. In all cases costs have been markedly reduced. Estates which a few weeks ago were producing rubber at 50 cents per lb, or a higher price than rubber is fetching in the market, are now turning out their rubber for round about 30 cents. In times like the present this economy means a good deal to rubber estates, since it enables them to work at a small profit instead of running at a loss."

In the September report the paragraph on the proposed manuring experiments against secondary leaf fall is of particular interest. Mr. Ashplant says:—

"The problem of devising practical measures for combating a disease of the magnitude and universality of Secondary Leaf Fall has given me serious thought since my arrival. The recommendation of Mr. Macrae to remove the fruits and the dead branches which harbour the causal fungus has been found too costly, and is generally impracticable. It was never done thoroughly for the whole of any estate, and the measure has now been completely abandoned.

The difficulty of doing anything to lessen the source of the disease being insuperable, there are two other directions in which experimentation might be undertaken. The first of these—spraying, will, I fear, also prove impracticable, owing to the heavy expense involved, but if the necessary apparatus can be obtained, I propose to carry out some spraying experiments during the coming season.

The other alternative is manuring. From the fact that trees which are growing in the neighbourhood of cooly lines, where they get supplies of manure, hold their leaves better than their neighbours, and from the further fact that the most heavily attacked trees are usually the worst nourished, one is encouraged to think that it may be possible by manuring to increase very considerably the powers of resistance of Hevea trees against Leaf Fall. As some experiments of mine carried out a few years ago in Sumatra, have shown that the damage done to Hevea roots when manure is dug in in the usual way frequently off sets any benefits given by the manure, it has occurred to me that possibly an application of a small quantity of manure in liquid form at the time of the formation of the leaf, and perhaps again before the onset of the disease, may enable the trees to retain most of their foliage.

With the object of finding out what can be done in this direction, I propose early next year to start a series of large scale manuring experiments. Mr. J. R. Vincent has kindly placed a 50 acre plot on his Redlynch Estate at the disposal of the station. During the month I visited these estates and prospected the area to be experimented upon. The plots are now being marked out, and the trees got ready for measurement. I am now in communication with Messrs. Parry & Stanes, with a view to getting them to supply the necessary manure free of charge. Conversations with their representatives at the Bangalore Conference led me to think that they will do this."

Mr. Anstead's report for September deals largely with matters he has covered in his weekly reports in the Chronicle. We had not seen before, however, his reference to the Fruit Farm at Coonoor, where the question of a cover crop appears to be, as it is in our own spheres, one of importance. Mr. Anstead suggests several likely plants as suitable for the contours of the slop· to prevent soil erosion, and has sent some seed of *Crotalaria semper florens*, to be followed later with some seed of *Tephrosia Candida.*

We have yet to receive the October reports from Head-quarters, but hope to have these in time for inclusion in next week's issue.

NAURU PHOSPHATE.

Considerable interest has been aroused in the phosphates of Ocean and Nauru Islands. The phosphates produced in these Islands have since the War become Imperial property on the basis that the United Kingdom has a claim to 42 per cent. of the output at cost price, Australia to 42 per cent., and New Zealand to 16 per cent. The phosphates from the two islands are almost identical in composition and origin, and have arisen from the interaction of the excreta of sea-birds with the coral rock of the islands. While they cannot properly be described as guano they have originated from guano, and contain 85 to 89 per cent. of phosphate of lime calculated as tri-basic phosphate of lime, and are very free from iron and alumina. Both the physical and chemical character of the material is such as to render it readily soluble and available for growing crops.

Owing to the shortage of high-grade basic slag, a shortage which is more pronounced because of the increased interest in the improvement of grass land, the question of the availability of other phosphates is being closely considered. Many experiments show that finely-ground rock phosphates will do the work of the basic slag and encourage the growth of clovers in the same way, especially on old grass-land which is well provided with organic matter and where the rainfall is abundant. Recent experiments in Essex, where the conditions are comparatively unfavourable, show that the action of rock phosphates compares favourably with that of basic slag. In America, the use of ground rock phosphates has become very general. Actual trials with these particular phosphates from the Pacific Islands have as yet only been reported from New Zealand, but there is every reason to suppose that they will be even more effective than the ordinary rock phosphates.

The control of the phosphates of Nauru and Ocean Islands has been vested in Commissioners who have arranged with a Company to take the whole of the output allotted by the Commissioners to the United Kingdom. This Company has arranged to distribute it, mixed with basic slag in such a manner as to supply the farmer with grades of finely-ground material containing a minimum of 40 per cent. to a maximum of 65 per cent. of phosphates. When required it can be supplied free from admixture with basic slag with a guarantee of 80 to 85 per cent. of phosphates.

The mixture supplies the farmer with a finely-ground material which will act as an effective fertiliser in practically all cases where basic slag is of value. Steps have been taken in the contract of sale to limit the profit which the manufacturer of this product can make, and the British farmer will obtain the advantage of getting the richest phosphate in the world at a price which represents only the cost of production and a reasonable profit to the grinder and distributor.

The Ministry of Agriculture has no hesitation in recommending farmers to try the mixture of the Nauru and Ocean Islands phosphate and slag for application to grass-land at the rate of 4 to 6 cwt, per acre according to grade, especially upon heavy soils, peaty soils, and all situations where the rainfall is not too light. On arable land, the mixture cannot always take the place of superphosphate for the turnip crop, but a dressing of 4 cwt. per acre will form a good basis of continuously acting phosphatic manure for the whole of the rotation. A further 2 cwt. per acre of superphosphate, drilled with the seed for the turnip crop, will give it that initial start for which superphosphate is so valuable.

As a means of establishing a stock of phosphates in the soil, the mixture is a cheap source of phosphoric acid. At current prices, it costs from 2s. 6d. to 3s. per unit of phosphate of lime delivered to the farmer's nearest station, whereas basic slag (30/32 per cent. total phosphate) costs 4s. 3d. or (20/22 per cent. total phosphate) 4s., and superphosphate (30 per cent. total phosphate) 4s. per unit. The maxture has the further advantage, from its richness, of reducing the charges for freight, carriage, cartage and handling on the farm.

Further experiments have been started to ascertain more accurately the applicability of the Nauru and Ocean Islands phosphate to particular soils and crops. Sufficient knowledge already exists, however, to enable the Ministry to recommend with confidence Nauru and Ocean Islands phosphate to the farmer who wishes to improve his grass land and to lay a good manurial foundation for his arable land.

(Copies of this leaflet may be obtained on application to the Secretary, Ministry of Agriculture and Fisheries (Publications Branch). 10 Whitehall Place, London, S. W. I.)

Merlimau and the E. P. D,

Our London Correspondent cables to-day that the Merlimau appeal has been successful. This would appear to refer to the long-deferred appeal by the Crown against the decision of the Income Tax Commissioners in connection with the excess pofits duty payable by the Merlimau Rubber Estates, Limited. The decision was one of very considerable importance. It was held in the Vallambrosa case that for income tax purposes all sums spent on the upkeep of a rubber plantation may be treated as revenue expenditure. Although, as shareholders know, in a rubber company's printed balance-sheet the year's cost of upkeep of immature rubber is commonly debited to capital, the company in its income tax return shows the item as a debit against the year's profits, thus reducing the liability for income tax. The claim of the Inland Revenue was that, if upkeep expenditure is a charge against profits in the income tax return, it cannot at the same time be treated as capital expenditure in the excess profits return. The sums which the Merlimau Rubber Estates had spent on upkeep and charged to capital in its annual balance-sheet, but shown as revenue expenditure in its income tax returns were, roughly, as under :—

	£.
1910	20,000
1911	31,400
1912	21,800
1913	16,300
Total...	89,500

The point was whether this £89,500 was to be deducted from the Merlimau capital in calculating that Company's profit standard. The appeal of the Merlimau Company was heard before the General Commissioner, and was concluded in the Company's favor on the 23rd of July, 1918. The decision was of considerable importance. So far as the Merlimau Company was concerned, it apparently entitled the Company to reclaim duty for the four years 1914-1917, to the extent of £21,480, while in respect of 1918 it would save a further £7,160. The decision, however, was of more far reaching importance than its effect on the Merlimau Company, for, if it was upheld, it was believed that the revenue authorities would have to refund at least one-third of the total sum they had received from rubber companies in excess profits duty. Consequently, no surprise was expressed when the Crown gave notice of appeal. For some reason or other, however, the Crown delayed deciding whether it would prosecute its appeal or whether it would accept the General Commissioner's decision. At the annual meeting of the Merlimau Estates, Limited, on May 31st, 1920, the Chairman, Mr. A. H. Bagnall, complained that the Crown had still come to no decision. Apparently, the Crown has recently made up its mind to appeal, with the result mentioned by our London Correspondent.—*Times of Ceylon.*

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" COFFEE.

(BY CABLE.)

London, 25th November, 1921.

126s,/- per cwt. Market Steady.

The Rubber Growers' Association Cables, council have issued circular to all producers plantation rubber urging continuance voluntary restriction first six months 1922, ends.

THE U. P. A. S. I.

PROCEEDINGS OF AN EXTRAORDINARY GENERAL MEETING OF THE UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA, HELD AT THE CLUB, COIMBATORE, ON MONDAY THE 28TH DAY OF NOVEMBER, 1921, COMMENCING AT 10 A. M.

PRESENT.—Mr. H. L. Pinches ... ... Chairman.

Mr. J. A. Richardson, M.L.C. ... Planting Member.
Major C. H. Brock, O.B.E., V.D. ... Acting Secretary.

District Associations.	Represented by.
Anamallai P. A. ...	Messrs. J. H. Robinson and E. W. Simcock.
Central Travancore ...	Mr. E. C. Sylvester.
Coorg P. A. ...	Lt.-Col. W. L. Crawford.
Kanan Devan P. A. ...	Mr. J. S. Hawkins.
Nilgiri P. A. ...	Mr. F. H. Farmer.
Nilgiri-Wynaad P. A. ...	Messrs. J. Aird and J. S. Nicolls.
North Mysore P. A. ...	Mr. E. L. Poyser.
South Mysore P. A. ...	Lt.-Col. Crawford, D S O.
Shevaroy P. A. ...	Messrs. H. S. Dickins and V. L. Travers-Drapes.
South Travancore ...	Mr. E. Lord
West Coast P. A. ...	Mr. A. C. Morrell.
Wynaad P. A. ...	Mr. B. M. Behr
Mundakayam P. A. ...	Mr. A. C. Morrell.

Firm Members.	Represented by.
Bayly & Brock ...	Major C. H. Brock.
Harrisons & Crosfield ...	Mr. E. Lord.
Madura Co. ...	Mr. J. A. Richardson, M. L. C.

Visitor:—Mr. L. E. Kirwan.

The Secretary read the Notice calling the meeting.

The Chairman spoke as follows: Gentlemen,—Before to the business of to-day, I think we should put on record the great loss the Planting Community has sustained by the death of three of its members I refer to the late Mr. J. Harding Pascoe, Mr. D. McArthur and Mr. S. P Eaton. I propose that our Secretary be instructed to convey to their relatives our sincere condolence for the sad loss they have sustained.

The meeting signified its assent in silence, all members standing.

ARTICLES OF ASSOCIATION.—The following resolution was proposed from the Chair as a special resolution:—

"With reference to Article 7 in the Articles of Association, that instead of the dates, 30th day of June, 30th day of September, 31st day of December and 31st day of March, the following be substituted:—1st April, 1st July, 1st October, and 1st January."

The resolution was put to the meeting and carried, one member dissenting.

The Chairman declared the resolution carried, and gave notice that it would be brought up for confirmation at an Extraordinary General Meeting which is to be held at Coimbatore on Monday, the 19th day of December, 1921.

The Chairman announced that the second resolution, proposed by the Anamallai Planters' Association was, with the consent of the meeting, withdrawn.

This terminated the proceedings, and the meeting was declared closed.

(Signed) H. L. PINCHES,
Chairman.
(,,) C. H. BROCK,
Acting Secretary.

THE U. P. A. S. I.

PROCEEDINGS OF A MEETING OF THE GENERAL COMMITTEE OF THE UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA, HELD AT THE COIMBATORE CLUB, ON MONDAY, THE 28TH DAY OF NOVEMBER, 1921, AT 10-15 A. M.

The following members were present:—

Mr. H. L. Pinches ...	Chairman.
Mr. J. A. Richardson, M. L. C. ...	Planting Member.
Major C. H. Brock, O. B. E., V. D.	Ag. Secretary.
Mr. Edwin Vincent ...	Labour Superintendent.

District Associations.	Represented by.
Anamalai P. A.	...Messrs. J. H Robinson & E. W. Simcock.
Central Travancore P. A.	...Mr. E. C. Sylvester.
Coorg P. A.	...Lt.-Col. W. L. Crawford, D. S. O.
Kanan Devan P. A.	...Mr. J. S. Hawkins.
Mundakayam P. A.	...Mr. A. C. Morrell.
Nilgiri P. A.	...Messrs. J. Beaver Vernede & F. H. Farmer.
Nilgiri-Wynaad P. A.	...Messrs. J. Aird, J. S. Nicolls & R. Fowke.
North Mysore P. A.	...Mr. E. L. Poyser.
South Mysore P. A.	...Lt.-Col. Crawford, D. S. O.
Shevaroy P. A.	...Messrs. H. S. Dickins & V. L. Travers-Drapes
South Travancore P. A.	...Mr. E. Lord.
West Coast P. A.	...Mr. A. C. Morrell.
Wynaad P. A.	...Mr. B. M. Behr.

VISITOR.—Mr. L. E. Kirwan.

The Secretary read the notice calling the Meeting.

The Proceedings of the last Meeting of the General Committee, held on the 25th August, 1921, were taken as read and confirmed.

INTER-DISTRICT LABOUR RULES.

The Chairman said that in compliance with the resolutions passed at the Annual General Meeting, the Executive Committee had framed some rules, which he would ask the Secretary to read out. The first Rule was as follows:—

> " No member, or any person recruiting on his behalf, shall henceforth recruit any labour whatsoever in a Planting District other than that in which the Estate, for which such labour is being recruited, is situated, unless previous permission has been granted by the Association of such Planting District through the Labour Department."

DEFINITION OF PLANTING DISTRICTS.

Anamalais.—The hill portion of the Pollachi Taluk of the Coimbatore District.

C. T. P. A. and Mundakayam.—Peermade Taluk of the Devicolam Division.

Coorg.—The Province of Coorg.

Kanan Devans.—The Devicolam Taluk of the Devicolam Division.

Nilgiri and Nilgiri-Wynaad.—The Nilgiri District.

Mysore.—Kadur District and Munzurabad, Belur, Alur sub-taluks of Hassan District.

Shevaroys.—The Shevaroy Hills, west of the road from Salem to Uttangarai.

South Travancore and West Coast.—All areas within 5 miles of the boundaries of any Estate.

Wynaad.—The North and South Wynaad Taluks of the Malabar District.

" Any member acting in contravention of this rule shall pay a penalty."

Mr. Nicolls said that he had been recruiting labour in the West Coast for many years before anybody even thought of planting rubber there. He pointed out that he would not mind giving up this labour if he could obtain a guarantee from the Labour Department that his labour would be replaced, as, without such a guarantee, he could not be expected to relinquish the labour which he had employed for about 25 years. He quite recognised the necessity of trying to protect labour from being taken away from Planting Districts. He did not wish to pose as an obstructionist, and he was perfectly willing to meet the views of the Labour Department, provided the Labour Department would guarantee that he would not suffer from it.

Mr. B. M Behr said that he agreed with Mr Nicolls' remarks, and that he would have to vote against the areas as defined.

Mr. J. Aird said that he also agreed with the former speakers.

After some further discussion, the Chairman suggested that they should take the areas District by District, and if the meeting did not approve of the suggested areas of any District, that District might be cut out. He first asked if the definition of the Anamallai District was acceptable. Mr. Simcock replied that it was all right.

Mr. J. A. Richardson said he had no objection to the definition for Central Travancore and Mundakayam.

The Meeting then agreed to the areas defined in the Districts of Coorg and K. D. P. A.

Mr. Simcock objected to the Nilgiri District being included, as the Anamallais for many years had large connections of Badaga labour from the Nilgiris.

Lt.-Col. W. L. Crawford and Mr. E. L. Poyser agreed to the definition for the Mysore District.

Mr. H. S. Dickins, referring to the Shevaroy boundary, asked for it to be extended as far as the Railway on the East and Salem on the South. The opinion of the meeting, however, was that the definition as drawn up by the Executive Committee would meet the case best.

Mr. Dickins added a remark that on his way down to the Meeting he had seen at the Railway Station about 40 of their local labour on their way to Murugalli Estate in the Anamallais. It was this kind of thing that his Association wished to have stopped.

The areas suggested by the Executive Committee for South Travancore and West Coast led to a great deal of discussion, and it was finally decided to leave these two Districts out of the scope of the proposed Rule.

Mr. E. Lord objected to the inclusion of the Peermade Taluk, as a part of that taluk was a recognised recruiting ground for South Travancore Estates.

The Chairman then put the Rule to the Meeting, omitting the following Districts from the list of Planting areas :—

Central Travancore and Mundakayam
Nilgiris and Nilgiri-Wynaad
South Travancore and West Coast

The resolution was carried with one member dissenting.

The Chairman then read the second Rule :—

" In the event of a maistry being proved to be working as a cooly on an Estate other than that from which he has obtained an advance for the supply of labour, the Estate on which such maistry is working shall return him, on demand from the Labour Department, to his proper employer, who shall not be liable for any debt contracted on, or in connection with the Estate where he was found to be working as a cooly."

Mr. Nicolls said in introducing this Rule they were making themselves liable for the acts of their maistries, and this was a procedure which he could not and would not accept. If he were to hand over his maistry's coolies without the protection of a warrant, his maistry would be at liberty to default and repudiate his contract. He also asked how he could hand over coolies to another Estate when the coolies were his Maistry's, and not his.

Mr. B. M. Behr objected to the proposed rule, in as much as it introduced far too much interference between the Maistry and his coolies.

After Mr. Simcock had spoken in favour of the resolution, and Mr. Nicolls had replied, Mr. Hawkins suggested a change in the wording of the Rule, the words "Hand him over to the Labour Department" to be inserted in place of the words "Return him......" The rule was then put to the vote, and carried on a show of hands by a small majority.

Mr. J. Aird (Nilgiri-Wynaad) demanded a poll, which resulted in the rule being carried by 1,085 votes to 665.

The following rule was put to the meeting, and was carried *nem con* without discussion :—

"In these Rules the word "Maistry" shall be interpreted to include Sub-Maistries and Sub-Kanganies, and all members should register these latter in the same way as maistries are registered."

The Chairman then asked the Acting Director to read his proposal, which was :—

"That a rule be framed, as under, to include all cases of defaulters from Estates in Native States, who have been traced to Estates in British India, and *vice versa* in such cases where the service of warrants is not permissible by law."

"Under the above-mentioned circumstances, should a defaulter be proved to the satisfaction of a Superintendent of the Labour Department to be working on such other Estate, the Estate on which that defaulter is found to be working, *shall* return the defaulter to his original employer, who shall not be liable for any debt contracted, or in connection with the Estate where he was found to be working; or, if he elects to do so, he may retain the defaulter and refund to the original employer the amount of the debt due."

"The above Rule is not intended to apply to cases which are already provided for under Rule 6."

MR. J. AIRD.—This rule comprises the very reason for the formation of the U. P. A. S. I. 30 years ago. At that time the Government offered us an Act to meet the difficulty, but the Act was, for some reason, turned down by the planters. If Government were unable to frame an Act which would meet with the approval of planters, he did not think the planters themselves would be able to do so.

THE CHAIRMAN.—I think the easiest way out of the difficulty is by mutual agreement, and regarding Mr. Aird's point, what cannot be done by the Government can and should be done by us.

Col. Crawford differed from Mr. Aird's views, and explained at some length the position of Mysore in the question of Labour warrants, which planters in British India could and did get executed in Mysore, whereas Mysore have not the same facilities for bringing back defaulters from British India.

MR. NICOLLS agreed that some such rule was necessary, but was against the rule as it stood. He thought, however, that something might be made of it.

Mr. E. L. Poyser supported Col. Crawford.

Mr. J. S. Nicolls said that he agreed personally to the Rule, but was afraid it would lead to great loss being incurred by his Maistries. He also emphasised the illegality of the Rule.

The Rule was put to the Meeting, and carried on a show of hands.

Mr. Nicolls demanded a poll, which resulted in the Rule being carried by 868 votes to 673. The West Coast and Bababudin P. Associations did not vote.

MR. J. A. RICHARDSON.—He quite saw Mr. Nicolls' point about the legality of this question, and they would have to be careful in dealing with it. At the same time he thought it was necessary that we should come to a mutual agreement and he would deprecate discussion in public by local Associations. Such a discussion would show to the outside world a weakness on our part, and he trusted therefore that there would be no difficulty in coming to an agreement between ourselves.

LABOUR COMMISSION.

The Chairman announced that Mr. J. R. Vincent had resigned from the Executive Committee and from the Labour Commission, and regretted that the Association would thus be deprived of his valuable services. The Commission would now consist of Messrs. **E. Lord**, W. A. Lee and R. Fowke.

Mr. Fowke stated that he wished also to withdraw from the Commission, and on being pressed declined to reconsider his decision.

Mr. Simcock on being asked, regretted that he could not spare the time.

The Chairman then invited Mr. J. S. Nicolls to join the Commission, and that gentleman's acceptance of the invitation was received with applause by the meeting.

ROADS.

The Chairman announced that there was to be a Meeting of the Road Board in Madras on 12th December, and that either he or the Secretary would attend that meeting. He asked delegates to state whether they wished to bring any Road matters before the Board.

Coorg P. A. asked for the Coorg-Tellicherry Road and the road from South Canara to be included. Mr. Poyser asked for consideration to be given to the road from Mangalore *via* the Charmadi Ghaut, the latter not being capable of taking lorries.

He read a letter on the subject from the President, District Board, and wished the Meeting to take notice of the District Board's assertion that running licenses were necessary for motor lorries. He did not think that was so.

Mr. Simcock pressed for improvement to the Anamallai Ghaut, and Mr. Sylvester wished the matter of Periakolam-Kuruvanauth Road to be brought up.

Mr. Aird pointed out the possibility of the Nilgiris being entirely cut off from the Coimbatore District if both the Railway and the Road were ever damaged seriously, a not unlikely occurrence. He asked therefore that Government should be approached to turn the Kotagiri-Mettupalaiyam Road into a trunk road, and to hand it over to the P. W. D.

Mr. Nicolls supported Mr. Aird, and stated that the Nilgiri District Board had already made the suggestion to Government.

Mr. J. A. Richardson.—There is also the question of strengthening the Kallar Suspension Bridge on the Ooty Ghaut, to enable it to carry lorries.

SUBSCRIPTIONS TO THE U. P. A. S. I.

The Chairman said that the Executive Committee had some proposals to make, and he would ask the Secretary to read them out.

The Secretary said that, owing to the Moplah troubles and the poor market, Rubber Estates find themselves in a very bad way financially. As a result, they are unable to meet their subscriptions to the U. P. A. S. I., and the Budget therefore would not balance. They had suggested to the Government that Government should meet the entire upkeep of the Rubber Mycologist, but this had been refused. He now suggested making another proposal, and he would read a draft letter he suggested sending to Government. The letter reads as follows:—

" Under the arrangement laid down according to G. O. Press 726 of the 30th March, 1916, this Association agreed to contribute Rs. 10,000 per annum, in return for which, among other services, the Department of Agriculture were to add a Special Mycologist to the cadre of the Agricultural Department for the investigation of diseases affecting Rubber, Tea and Coffee.

In addition to this, the Association obtained through Government the appointment of a Special Rubber Mycologist, all the charges in connection with whom are borne by the U. P. A. S. I.

Owing to the financial difficulties in which this Association has been placed owing to the depression of the Rubber Industry, and finally, owing to destruction of Estates caused by the rebel Moplahs in Malabar, this Association asked Government, on the 29th of August last, for assistance in the expenditure of the Rubber Mycologist, which assistance has been definitely refused in G. O. No. Mis. 2124, dated 16th November, 1921.

Further, owing to these financial difficulties, this Association, in a letter addressed to the Director of Agriculture, dated the 14th October, 1921, requested Government to kindly postpone the appointment of the General Planting Mycologist, for which post an application had been received.

It has become an absolute necessity for this Association to help its Rubber Members, as far as lies in its power, by the remission or reduction of their subscriptions, as many Rubber Estates are either on the verge of bankruptcy or are actually insolvent.

There is one way in which the Government can help this Association, without being called upon for any extra expenditure than has already been provided for, and this is, for Government to take over the Association's Rubber Mycologist, and appoint him General Planting Mycologist under the original arrangement made with Government in 1916.

Briefly, it is proposed that this Association should pay Government its full contribution originally agreed upon, viz., Rs. 10,000 for the current year, and that Government should appoint the Rubber Mycologist as Planting Mycologist as from the 1st April last.

There remains the question of the Planting Mycologist's Station. This Association would suggest that, as it has built and equipped the Rubber Mycologist's Station at Mundakayam, which is complete with the exception of a Culture House, the Government should either take over the Station from the Association at a price to be agreed upon, or the Government should pay the Association rent for the same. If a Planting Mycologist had been appointed the Government would have had to provide him with a Mycologist Station: so, even if Government takes over the existing Station at Mundakayam, the cost to Government remains the same."

The Secretary went on to explain that out of the Rs. 10,000 which forms the U. P. A. S. I. subscription for the General Mycologist, the Association actually pays only Rs.7,000 as a Mycologist has not yet been appointed. If the Government accept the suggestion contained in the above letter, it would mean that we should have to increase our expenditure from 7,000 to 10,000, but we should save Rs. 28,000 on the Rubber Mycologist. There would therefore be a saving of Rs, 25,000 this year. The draft was approved with applause, and the Secretary instructed to send the letter

Mr. A. C. Morrell read a resolution which he had been asked to put forward by the Mundakayam P. A. asking for a reduction of the Rubber subscription to a nominal sum. In view of the letter just read being sent, he would withdraw his resolution.

Mr. LORD.—I have been instructed by the South Travancore P. A. to put forward the following resolution :—

"That this Association after discussion consider that all mature rubber area from which no crop is being harvested should be exempt from all cess to UPASI."

MR. MORRELL.—The West Coast also had a resolution regarding abandoned rubber, and proposed that the word "Abandoned" be taken to mean "Revenue yielding areas that have been closed down."

The Chairman read the rule suggested by the executive committee as follows:—

"When declaring acreages for any one year, District Associations may reduce their previously declared area on account of areas actually abandoned, but shall be liable for the full arrears of subscription on such abandoned areas or such part of the same as may be reclaimed before the 31st March, 1924."

"The word "Abandoned" shall be taken to mean any planted area from which no crop is harvested and on which no agricultural operations are conducted during that financial year."

MR. LORD.—"The West Coast resolution is practically the same as that put forward by South Travancore."

Mr. Nicolls suggested that the meaning of the word "Abandoned" should be "on which no crop is harvested".

Mr. Lord read the S. Travancore resolution again, and emphasised the words "Mature area".

The Chairman then suggested an amendment of the wording of the Executive Committee's proposed Rule, viz:—

"When declaring acreages for any one year, District Associations may reduce their previously declared area on account of areas actually abandoned; but shall be liable for the full arrears of subscription on such abandoned areas, or such part of the same as may be reclaimed before the 31st March 1924.

"The word "Abandoned" shall be taken to mean any revenue bearing area from which no crop is harvested, and immature areas on which no agricultural operation are conducted during that financial year in both cases.

MR. LORD.—S. Travancore objects to any back-cess being collected when the areas come in again.

CHAIRMAN.—We are doing our best to help rubber planters, and they will have to meet us by paying the amount we now propose to remit when times are better and they ought to be in a position to do so.

MR. LORD.—The areas abandoned now may possibly be brought in again in better times, but on a bare margin.

MR. SIMCOCK.—I take it that when they do come in, the Association will act reasonably, and will give consideration to points such as that brought up by Mr. Lord.

MR. NICOLLS.—I think we may be certain that the U. P. A. S. I. will not *force* anybody to pay, but will *expect* Rubber planters to pay if they are able to do so.

MR. L. E. KIRWAN.—It might not be a question of the financial condition of the industry, but of the specific concern.

CHAIRMAN.—I agree that, no doubt, each case and each Estate's position will be treated on its merits, but I think we should retain the clause regarding payment of arrears of subscription.

MR. LORD then proposed the S. Travancore resolution as an amendment, viz., "that all mature rubber areas from which no crop is being harvested shall be exempt from all subscriptions to the U. P. A. S. I."

No seconder being forthcoming the original resolution was put, the amendment being withdrawn.

The rule as proposed by the Executive Committee and amended was carried, South Travancore alone voting against it.

At this stage, the Chairman announced that Mr. N. Gopalaswamy Aiyengar would be pleased to meet those members interested in District Boards at the U. P. A. S. I. Office at 3 p. m.

MR. POYSER.—Whilst we are still on this subject of subscriptions, may I ask if any arrangement has been made for the collection of subscriptions from individual estates by the Coimbatore Office.

Chairman.—No.

MR. POYSER.—My Association has no resolution to propose on the subject, but have asked me to suggest it, and I have been instructed to support any resolution which might be put forward suggesting such a scheme.

THE SECRETARY.—"Mr. Waddington was in favour of it, and I personally see no harm in it, but it has been twice turned down on previous occasions."

We must remember that the Upasi has no power under its articles to do it. It can be done from Head-quarters by means of employing a special clerk at the cost of District Associations to act as their Agent and to collect subscriptions. After some discussion, the Secretary was instructed to write round and ask the different Associations if they wished this to be done.

INCORPORATION.

The Secretary explained the position, and asked if Mundakayam, West Coast and South Travancore were going on with their incorporation.

Mr. Morrell, (Mundakayam) informed the meeting that they would discuss the matter again in January, and he though he might say the same thing of the West Coast.

MR. LORD.—"I am under the impression that South Travancore are going on with it."

CHAIRMAN:—"I hope you will all get your incorporation put through as quickly as you possibly can."

ARTICLES OF ASSOCIATION.

This item was struck out of the Agenda.

DATE OF NEXT MEETING.

THE CHAIRMAN.—"We suggest that the next meeting shall be held on Wednesday, 2nd of February, 1922 at Coimbatore, when the Budget will be considered, and we hope also to have the report of the Labour Commission." The date was agreed to.

AMENDMENT OF CRIMINAL CODE.

The Secretary read a letter from the Government of India as follows:—

Sir,—The following resolution was adopted at the meeting of the Legislative Assembly on 15—9—21 :—

> "This Assembly recommends to the Governor-General in Council, that, in order to remove all racial distinctions between Indians and Europeans in the matter of their trial and punishment for offences, a committee be appointed to consider what amendments should be made in those provisions of the Code of Criminal Procedure, 1898, which differentiate between Indians and European British subjects, Americans and Europeans who are not British subjects in criminal trials and proceedings, and to report on the best methods of giving effect to their proposals."

2. The Government of India propose to appoint a committee to enquire into this question, and it is at present intended that the committee shall meet in Delhi early in January, 1922. It is thought that your Association may wish to forward a memorandum for the consideration of the com-

mittee, and in that case I am to suggest that such memorandum may be forwarded to the Secretary to the Government of India in the Home Department as early as possible.

THE CHAIRMAN.—I propose to approach the Indian Tea Association on the subject, and, on hearing from them, we will either support their memorandum, if they are sending one and we can agree to it, or we will send one of our own.

COL. CRAWFORD:—My Association has instructed me to say that we are against giving up any of our established rights.

Mr. POYSER.—My Association is against the withdrawal of our right of being tried by a European British Magistrate.

BREACH OF CONTRACT ACT.

The Secretary read the resolution which was put before the Legislative Assembly last September, and said that it had been withdrawn on the Government promising to consult public opinion. He read the following letter which he had received from Government :—

" The Government of India have given an undertaking that they were prepared to adopt the view that the repeal of the Workman's Breach of Contract Act was desirable on general grounds of principle, and that they would be prepared to undertake legislation to repeal it if the public opinion was in favour of it. I therefore request you to offer your remarks on the position generally, and, in particular, on the question whether the repeal of the Act is likely to affect materially the industrial progress of the country. Please also say if you think the repeal of Sections 490 and 492 of the Indian Penal Code is desirable with reasons."

CHAIRMAN.—We all of us certainly object to the repeal of this Act, and I take it you agree that our Secretary should reply to Government in those terms.

HOOKWORM CAMPAIGN.

The Secretary read the following correspondence from the Surgeon-General and Dr. Kendrick:—

Office of the Surgeon-General with
the Government of Madras.
No. 95H/11679—A. Station 81, Mount Road, Madras.
Date, 24th November, 1921.

From
Major W. C. Gray, I. M. S.,
Personal Assistant to the Surgeon-General
with the Government of Madras.

To
The Secretary,
The United Planters' Association of
Southern India, Coimbatore.

Sir,—In forwarding herewith letter from Dr. J. F. Kendrick, I have the honour to state that the Surgeon-General strongly recommends the proposals, and requests you to kindly render all assistance to Dr. Kendrick in his undertaking.

I have the honour to be, Sir,
Your Most Obedient Servant,
(Signed) W. C. GRAY,
Major, I. M. S.
Personal Assistant to the Surgeon-General
with the Government of Madras.

81, Mount Road, Madras,
14th November, 1921.

Sir,—In pursuance of your suggestion that the Anti-Hookworm Campaign definitely define what assistance it would be prepared to render, and what it would expect of the Planters in undertaking hookworm control measures on estates, I have the honour to submit herewith the attached outline.

In this connection I desire to call your attention to the fact that the Campaign has already conducted control measures on five estates in the Anamallai Hills, and work is now in progress on three others. As this planting area is well isolated, and as it contains a relatively small number of estates, it would seem most desirable that efforts be made to induce the remainder of the Planters of this locality to also undertake the work on their estates. If this demonstration proves a success there will be little difficulty in starting similar operations in other districts.

Most respectfully yours,
J. F. KENRICK.

To
The Secretary,
The United Planters' Association of Southern India,
Coimbatore.

The Anti-Hookworm Campaign under the Surgeon-General with the Government of Madras in its work on a number of estates in several districts has found that from 85 to 100 per cent of the coolies working on these estates are infected with hookworms. On certain estates in the Anamallai Hills groups of coolies were treated, and the worms passed were counted. Every cooly treated passed worms, indicating that 100 per cent of the coolies were actually infected even though by means of the microscope we were able to demonstrate only that 91·6 per cent were infected. Equally significant findings have been made during the work on estates in the Nilgiris-Wynaad. Examinations of the blood of about 2,000 coolies from these districts showed that 20 per cent of them had haemoglobin below 50 per cent.

This is a disease which retards development, saps energy, renders its victims more liable to infection with other diseases such as diarrhœa, dysentry, tuberculosis, influenza, pneumonia, and less able to resist such infections, and which itself when present in a severe form leads to total disablement and often to death : and in the interest of economic and industrial progress as well as for humanitarian reasons, it demands a solution.

Recent investigations show that two treatments of either Thymol or oil of Chenopodium, given at intervals of one week or ten days, will remove 98% of the worms harboured by the group of individuals treated, and at the same time will completely cure a large percentage of them. Here then we have a method by which this menace may be quickly and cheaply brought under control. By initially administering to each cooly on an estate two doses of one of these drugs the number of worms in the intestines of each cooly treated will be reduced to a point where it will be of no economic importance. Then until sanitary conditions about the lines can be greatly improved by the installation and use of latrines, which will prevent the occurrence of re-infection, all that should be done is to keep the number of the worms reduced by administering to all the coolies at intervals of from 6 to 8 months a single dose of one of the abovenamed drugs. This reduction in the number of worms will simultaneously reduce the number of eggs discharged with the motions, and even if soil-pollution does continue to some extent the chances of re-infection will be lessened enormously. Probably the best time to give the treatment would be immediately upon arrival of the cooly from his village. It will be argued that the coolies often do not return to the same estate year after year, but wander from estate to estate, and that the advantages accruing from the treatment will be reaped by some one else. This, however, is not the usual course of events. From 75 to 90 per cent of the coolies usually return to the same estate year after year. Furthermore, if all estates were to adopt these measures, the only loss incurred would be on the coolies who do not return to any estate. Another point against such argument is that the benefits resulting from hook-worm treatments soon make themselves manifest, and, if the coolies are treated as soon as they arrive their physical condition begins to improve almost at once.

The Anti-hookworm campaign is anxious to co-operate with the Planters along these lines, with a view to bringing this disease under control on all estates. To this end it desires to submit the following proposals :—

1. The Anti Hookworm campaign will undertake to conduct a series of demonstrations in hookworm control measures in the various planting areas on estates to be chosen by a committee selected by the President of the Planters' Association. For every eight or ten Estates in a given district it is suggested that such a demonstration should be conducted on one. During the progress of the work on this estate the Sub-Assistant Surgeons or Apothecaries of the remaining estates in the group may spend sufficient time observing the work to enable them to intelligently carry out the work on the estates from which they come.

2. The Director of the work will visit from time to time the areas in which the work is being conducted, and will be pleased to confer with the Planters on the most effective means of keeping the disease under control.

3. It will be expected that accurate records of all work accomplished, including the number of treatments given, the construction of new latrines, and the improvement in the health and working capacity of the coolies, will be kept and reported quarterly to the Anti-Hookworm Campaign on special forms, which will be provided.

4. Special treatment books with sufficient space to enter the names and details of treatment of 1,250 persons will be supplied by the campaign at cost.

5. The Estates will be expected to furnish the necessary drugs. The cost of one treatment should not exceed two annas.

6. Each cooly to be given a full 'name' on the day of treatment.

7. A shed or building in which the people may be treated and sheltered from rain or sun during the treatment is necessary.

If no permanent shed is available, a temporary structure should be built. The hospital verandah is often used for this purpose. When oil of Chenopodium is used it is necessary to construct temporary latrines on the treatment grounds. The cost of these should be practically nil. Two trenches, each 3 feet deep, one foot wide, and eight feet long, surrounded by screens, is sufficient.

8. Quarters, but not food are solicited for the members of the Campaign staff during their stay on an estate.

9. The services of a writer and a cooly may be required for a few hours each day. The Estate apothecary also can render great assistance, and at the same time acquaint himself with the system of conducting the work.

In this connection I submit herewith an excerpt from a recent report by Dr. G. Baermann of Sumatra where hookworm disease is one of the most important causes of invaliding amongst coolies :—

> "Three estates which, in spite of all recommendations, refused to adopt these measures, "vide infra" had in the course of the last two and one half years, 4,657 admissions to hospitals; three estates with the same labour force which did adopt these measures had 1,034 admissions showing a difference 3,623.

" Assuming one admission comprises 22 days of treatment (average in 1918,) reckoned at 50 cents a day, then this shows a loss of about 40,000 guilders for this period alone.

" The number of lightly infected (ankylostomiasis) coolies

On insanitary estates was	310
On sanitary estates was	20

" The number of badly infected coolies

On insanitary estates	10
On sanitary estates	3

" All sanitary estates showed 1·8% of coolies sick.

" Insanitary estates showed 3·0% of coolies sick.

" I must not omit once more to repeat the important measures for combating ankylostomiasis.

" (1) The cooly lines must be clear of all cultivation for a space of 25 meters. (Rubber trees within this distance must be cut out or the branches pruned).

"(2) Floors of the rooms, verandahs, drains must be bricked and cemented, and on the far side of the 'drain' a border of 50 centimeters wide must also be of brick and cement.

" In case of cooly lines built 2 to 4 feet above the ground only the space between door and the drain need be cemented. The space under the floor should be surrounded with barbed wire or other form of fencing to prevent it being used in any way whatever.

" (3) All water tins must be placed in the cemented room, on the verandah, or over the drain. They must not stand on the uncemented ground.

"(4) All cooly lines must be provided with a latrine built to a special design, and, if possible, be connected with the cooly line by a covered way.

"(5) Each cooly line must have a good watchman, who must remove all weeds, and wash down the drains and latrines daily.

"(6) Each Assistant must inspect his cooly lines daily.

"(7) Very pale coolies should be sent to the hospital for immediate treatment.

"(8) Regular worm cures according to the amount of infection which will be determined by an annual inspection of all coolies.

"By means of these measures during the period, 1906-1918, the number of first class coolies has risen from 35% to 90%. The number of medium infected coolies has fallen from 50 to 10%.

" The number of severely infected coolies has fallen from 15% to 0·5%."

THE SECRETARY.—Briefly, what Dr. Kendrick wants to know is, what districts will give him help on the lines indicated in his letter.

MR. NICOLLS.—In my opinion men who do not go in for this campaign are fools. I had Dr. Paul in my Estate for six weeks at a cost of Rs. 1,000. The treatment has made a wonderful difference to my labour, and coolies now freely ask for the treatment themselves realising its great benefits.

Apart from this, even the local villagers come in for treatment. It costs you three days' pay per cooly over a matter of three weeks, and 2 annas per case for medicine.

MR. ROBINSON.—In the Anamallais experiments were carried out on the Bombay-Burmah places, and the Co-operative Wholesale Society Estates Mr. Ogilvy, Secretary of the Medical Association informs me that a report will be issued, but I am not in a position to give you any information about it.

On a request being made to circulate Dr. Kendrick's letter it was decided to include the same in the minutes of the meeting, and the Secretary was instructed to draw the attention of Associations to it, so that they could write direct to the Surgeon-General or to Dr. Kendrick on the matter.

The meeting then closed with a vote of thanks to the Chair.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore,
1st December, 1921.

SECRETARY'S REPORT NO. 37.

1. SHORANUR-MANANTODDY RAILWAY.—The Government of Madras was addressed requesting that the question of the construction of the Shoranur-Manantoddy Railway should be taken up at an early date. To this, the Government of Madras have replied that the matter is under correspondence with the Railway Board which was last addressed on the 13th October, 1921.

2. RAILWAY FREIGHT ON TEA.—The Traffic Manager, South Indian Railway Company, Ltd., writes as follows:—

" Tea Ex. Kodaikanal Road, etc., to Tuticorin—Reduced rates for.
Your letter of 5th January, 1921.

I have the pleasure to inform you that the following special rates for Tea, the period of currency of which, expires on the 30th instant, and 31st proximo will be allowed to continue up to 31st March, 1922, after which date these rates will be enhanced in the general enhancement of rates when the Government and surtax is withdrawn.

Commodity.	From	To	Rate. per Md.			Condition.
			Rs.	A.	P.	
TEA ...	Kodaikanal Road,	Tuticorin.	0	3	2	In minimum consignments of 160 Mds. at owner's risk; owners to load and unload.
	Tenmalai.		0	3	2	
	Trivandrum.		0	5	11	
	Dindigul.		0	3	5	

Necessary instructions are being issued to the Stations concerned."

3. PERIAKOLUM-KURUVANUTH ROAD.—In reply to this Association's reminder to the Government of Madras asking what orders have been passed as to the repair and maintenance of this Road, the Government have replied that they have not yet passed any orders on the matter.

4. COCHIN PORT.—Messrs. Aspinwall & Co. Ltd., write as follows:—"Tea and Rubber Shipping dues. We beg to advise you that under orders from Government Shipping Dues for the above produce are from the 1st prox. to be increased from 2 annas per ton to Re. 1 per shipping ton of 50 Cubic Feet."

(Signed) C. H. BROCK,
Ag. Secretary,

THE SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT No. 26.

1. At the time of writing the Deputy Director of Agriculture, Planting Districts was at Bonaccord Estate paying a visit of inspection as indicated in last week's report.

2. THE EXPERIMENT STATION.—At the Coffee Experiment Station a dry spell was experienced during the week, with a few showers amounting to 0·54 inches at the end. Chop digging and mulching of supplies was done over a portion of the station, and after the rain this work will be pushedon rapidly. The crop is ripening slowly, and the first round of real picking will be done at the end of the month. The growth of green dressings is good.

At the tea Experiment Station evening showers fell on most days, and a total of 2·91 inches was recorded. 480 lbs. of green leaf was plucked from 4·58 acres, a yield of 104·8 lbs. per acre. Drains have been cleared, and the growth of the green dressing crops is now satisfactory. The station was inspected by the Deputy Director of Agriculture from 14th to 19th.

At the Rubber Experiment Station, Mooply, 2·39 inches of rain were gauged, of which 1·92 inches fell on one day, the 19th. Twelve acres have been sown with *Tephrosia candida*.

Daily tapping was done on 1,262 trees, and 146 lbs. of wet sheet and 21 lbs. of wet scrap obtained, a yield of 0·132 lbs. per tree as compared with 0·126 lb. last week.

At the Rubber Experiment Station, Tenmalai, 1·18 inches of rain was recorded, most of which fell on the evening of the 18th. Advantage was taken of this rain to sow *Tephrosia candida* seed in blocks G, D, and E. Daily tapping was done on 392 trees and 67·875 lbs. of wet sheet and 7 lbs. of wet scrap obtained, a yield of 0·191 lb. per tree as compared with 0·193 lb, last week. The first signs of normal wintering are beginning to appear.

(Signed) RUDOLPH D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

27—11—1921.

THE SCIENTIFIC DEPARTMENT, U. P. A. S. I.

Some Aspects of the work of the Madras Agricultural Department.

(Continued.)

We now reach the third stage in the development of cultivation in India.

" During the course of the process described above certain tracts of cultivation found themselves out of reach of any forests or waste lands. The cultivators of these tracts were therefore forced to progress to a third stage of conservative cultivation, *i.e* , they have to devise a system of cultivation which will maintain the fertility of their lands based on their own resources and without reliance on any outside sources of manure. It is obvious that this can be done in any tract only so long as the essential fertility of the soil is not exported in any form. Every part of the crop which is derived from the soil, and not from the air and water, must go back to the land. If any phosphorus in grain leaves the country, either directly as an export, or indirectly through the agriculturally wasteful method of running sewage into the sea, then the phosphorus should be replaced by the importation of an equivalent amount in the form of fish manure, bird guano, or phosphate rock, all derived directly or indirectly from the sea. Legitimate exports are oils, and cotton lint, hides and skins, as these are derived ultimately from the air and not from the soil. Oil cakes and bones should never be exported as these contain phosphorus derived from the soil."

It is for this reason that the Madras Agricultural Department, which with this third stage of settled agriculture has become necessary to study the problems involved and advise the cultivators, are so anxious to conserve all forms of indigenous manures, and advise the total prohibition of the export of bones and fish manure, and the imposition of heavy export duties on oil cakes. This subject was discussed at the annual meeting of the U. P. A. S. I., held at Bangalore in August, and need not be further dilated upon here.

" In the particular case of rice cultivation large quantities of organic material are required each year to provide a proper basis for the processes of bacterial fermentation which go on in paddy soil and which are essential to the growth of the plant. These organic materials are carbohydrates, derived solely from the air and water, and so can be grown anywhere. It is an advantage to use leguminous crops as these in addition take nitrogen from the air and add it to the soil."

" In Madras very large areas of paddy lands have reached the third stage of conservative cultivation. This is especially the case with the large deltas which between them account for some four millions out of the eleven millions of acres annually grown with rice in the Presidency. These areas have long ago learnt how to do without green leaves from the forests, and it is in these areas that one sees the practice of growing a green manure crop well established. This practice is steadily spreading."

The Agricultural Department here finds an important part of its work. It is doing its best to accelerate the spread of the practice by demonstration, by studying the best leguminous plants to grow in various tracts on the farms, by distributing seed, and by arranging for the collection of seed in areas where it is available and its sale at cheap rates in areas where it is needed. Sunnhemp (*Crotalaria juncea*) Daincha (*Sesbania aculeata*), and Kolingi (*Tephrosia purpurea*) are some of the most promising plants used for the purpose.

A great deal of demonstration work still remains to be done for part of the paddy lands of the Presidency are still in the more primitive second stage. They still rely, as formerly, on a regular supply of leaves from such forests as remain. The cultivators are conservative, and do not understand why any change in their methods is necessary. The growing of green manure crops may, in some cases, mean a considerable change in their practice. In order to make room for a green manure crop in the rotation it may be necessary to change the variety of paddy grown so, as to admit of a change in the date of transplanting, or harvesting. The ryots are slow to move and resent any interference with their settled customs, and the work of the agricultural demonstrators is slow and difficult. Still it continues year after year, and steady progress is made.

These are only two of the many problems with which the Agricultural Department has to deal. Other things the Department is trying to teach are the use of better seed, of new and high yielding varieties of grains, sugar, cotton, etc., which have been tried out on the farms; better methods of cultivation and the use of monsoon ploughs; the use of manures like poonacs and fish; the proper storage of cattle manure so that it does not lose its valuable manurial properties owing to exposure to rain and sun; better methods of harvesting and preparation of crop, products for the market so as to obtain higher prices. In addition to things like this encouragement is given to the ryots to form co-operative societies for the purchase of better animals, better impliments, better seed, new varieties of cane, etc. Also advise as to how to deal with pests and diseases forms a most important branch of the Department's work, and occupies the attention of the Entomological and Mycological sections.

As an example of the kind of work done by our Assistant Directors of Agriculture and Agricultural Demonstrators I quote an extract from a recent monthly report. This is typical of the routine work of these officers.

" He interviewed the Tahsildar who was camping in the village, and advised the ryots about the use of copper sulphate as a remedy for cholam smut disease. The village Reddi undertook to sell copper sulphate on behalf of the Department, and he was supplied with 250 packets of the chemical for this purpose. He also made arrangements for the sale of N. 14 cotton seed (an improved variety) for a fairly large area. From M........... he want to T..........and, accompanied by the Tahsildar, inspected the groundnut crop of four acres which had been attacked by hairy caterpillars, and demonstrated to the ryots the advantages of hand picking these caterpillars. He spoke to the ryots also about the use and importance of seed selection and the use of copper sulphate. The same night he went to R ....and interviewed the Revenue Divisional Officer and proceeded to V.........with him to inspect a few black and red soil villages. He reached K......the following evening and advised the ryots about the use of fish guano for their paddy."

And so the work goes on day by day in each circle. The many and varied activities of the Department cannot all be dealt with here. An example of the scope for improvement in the way of using manure may, however, be given. Some trials by ryots, under the advice of one of the Assistant Deputy Directors, of fish guano for Cambodia cotton showed that by using a quantity of this indigenous manure which cost Rs. 15 an increased crop of 14 maunds of kapas valued at Rs. 5 per maund can be obtained, leaving a gain of Rs. 55.

(To be continued.)

(Signed) RUDOLPH D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

LETTERS TO THE EDITOR.

The Planters' Chronicle is not responsible for the opinions of its Correspondents.

DEAR SIR,—May I recall to the minds of your readers an Institution largely founded, and yet almost entirely neglected by them.

There is half a lac of good planting rupees sunk in the Nilgiri Nursing Home at Ooty, and yet setting aside certain canny and doughty knights, only 9 members of the planting community have utilised the Home since its opening 9 months ago.

Sickness and child-bearing have been as common among Planters as in other years, and the present hard times should make a good thing at a reasonable price all the more desirable.

Neglect of the Home acts detrimentally in more ways than one. In the first place the money sunk is wasted to the Planters, and at the same time the Home cannot carry on without patients.

If, as I suppose ignorance of the benefits to be had, and the method of securing them be the cause of this neglect may I beg a little of your space in which to explain matters.

The Home represents the Planters of Southern India's War Memorial, fifty thousand rupees having been given by them to aid in its foundation.

In return for this gift 80 Planters who left their Estates and Firms to join up during the War are admitted to the Home on certain reduced fees.

The remainder of the Planters having only the same claim on the Home as the rest of the world.

The Home is run by the South India Nursing Association which i amalgamated with the Lady Ampthill Nursing Institute.

The terms for admission to the Home are for non-Subscribers to the L. A. N. I. :—

Persons drawing less than Rs. 1,200 a month	...Rs. 20 a day.
Persons drawing more than Rs. 1,200	...Rs. 30 a day.

For subscribers to the L. A N. I. these terms are very much reduced being :—

Those drawing under Rs. 500 a month	...Rs. 10.
Between 500 and 800	...Rs. 12.
Between 800 and 1,200	...Rs. 14.
Over 1,200	...Rs. 16.

The fees for Non-Subscribers are, as is evident, absurdly high, and can be only intended to drive every one to take forethought and become subscribers. No one, at least no member of the Planting community in the present hard times, could dream of using the Home on the terms offered, to non-Subscribers.

The fees for subscribers, on the other hand, are reasonable, and for the lower paid ranks, generous.

It seems a good deal to have to pay Rs. 14 a day for Nursing when one is sick and bearing other unpleasant and unallowed-for expenses, but when one recognises that this includes not only actual nursing but also the Nurse's keep and ones own food, nursing in the Home becomes much cheaper than being nursed in ones own house.

The method of becoming a subscriber is simplicity itself. All one has to do is to raise Rs. 25 and then to send this to the Honorary Secretary of the Lady Ampthill Nursing Institute, Mount Road, Madras, with a request that one's name be entered on the roll of subscribers.

The two important conditions being that subscribers cannot receive the benefit of their subscription until one month after payment of their first subscription; and the subscription, at whatever time of the year it be originated, only carries up to June 30 when it has to be renewed.

To gain the advantages of subscribing in cases of sickness it is necessary to have been wise in time and to have subscribed beforehand, but in cases of expected confinement, there is, of course, time for the Planter to become a subscriber before his wife's confinement shall be due.

The Home itself is, as I can say from personal experience, good in every way, well furnished, well staffed, and the Matrons and Nurses are kindness itself. The one thing it requires is to be adequately used.

Ooty,
Nov. 28—1921.

Yours faithfully,
(Signed) F. MILTON.

FOR SALE,

For fresh Vegetables and Flower Seeds, Economic and Ornamental Plants.

Apply:—CURATOR,
Government Botanic Gardens,
OOTACAMUND.

MISCELLANEOUS.

IMPORTANT NOTICE.

Increase your permanent Tamil Labour Force by joining the South Indian Labour Agency, Chittoor. Terms very moderate. Apply for full particulars at once to—

Messrs. C. P. SARATHY & BROS.,
Proprietors.

WANTED.

Planter of position wishes to look after Tea Estate or Estates. No salary required, but a percentage on profits may be given.

Apply:—SUCCESS,
C/o "Planters' Chronicle."

Second hand Tea Machinery, for hand Manufacture. State full particulars to—

Box No. 106,

C/o The "Planters' Chronicle."

The Planters' Chronicle.

RECOGNISED AS THE OFFICIAL ORGAN OF THE U. P. A. S. I., INCORPORATED.

(Secretary's Registered Telegraphic Address "U. P A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" COFFEE.

(BY CABLE.)

London, 2nd December, 1921.

126s./- per cwt. Market Quiet.

EDITORIAL NOTES.

THE GENERAL COMMITTEE MEETING.—We have to point out two errors which crept into the report of the General Committee Meeting of the U. P. A. S. I. at Coimbatore on 28th November, and which appeared in last week's *Chronicle*. On page 814 the anti-penultimate paragraph should read "The Proposal to frame a rule was put to the meeting, and carried on a show of hands." On page 818 the date of next meeting should read "Wednesday 22nd February, 1922," and not 2nd February, 1922.

THE SOUTH TRAVANCORE P. A.—The minutes of the meeting of this Association, held on 5th November last, were published in our issue of 26th idem The Honorary Secretary asks us to include the following paragraph, which was inadvertently omitted :—

"Discussion took place, on a letter to the Hon. Secretary, as to the method of voting adopted at the General Committee Meeting at Bangalore when the election of the Executive Committee took place, and the Secretary was instructed to ask the Secretary, UPASI, why the usual method was departed from without reference being made or any explanation being given to the meeting.

The Secretary was also instructed to ask the Executive Committee of the UPASI when future elections take place that the Members and Members-in-waiting be voted on separately."

THE LATE MR. WESTON ELWES.—Universal regret will be felt at the tragic death of this well known planter. It is only a few months ago that he was a visitor at the annual meeting of the U. P. A. S. I., so that our memory of him is still a vivid one. We extend our deepest sympathy to his young widow in her very sad loss.

THE LATE MR. J. D. BREWER.—We have also to record the death this week of Mr. J. D Brewer, of Attikhan, Mysore. Mr. Brewer was for many years a familiar figure in the Coffee planting world of South India. He was for some time on Murugalli in the Anamalais, and latterly returned to his old faith in Mysore. For a short period, it will be remembered, he was in the U. P. A. S. I. Labour Department, and acted as Superintendent at Chingleput, in succession to the late Mr. Bartels.

THE CRICKET MATCH.—We understand that the team for the Planters *v.* M. C. C. match has now been completed, and will consist of Messrs :—

J. E. D. Sullivan, (Captain)
R. D. Anstead
R. W. Fremlin
H. H. English
C. W. Fulcher
W. J. Dixson
H. J. C. Hammond
D. Cooper
E. G. F. Maule
F. L. Schwend

C. Jackson.

Mr. Hammond and Mr. Jackson at the time of writing are doubtful starters, but it is hoped to include them. The match has been definitely fixed for 27th and 28th December at Chepauk.

S. I. PLANTERS' BENEVOLENT FUND.

New Life Members since last notice ... Nil.

Summary of Subscriptions received from 1—4—21 to 30—11—1921 :—

Planters' Associations.		No. of Subscrs.	Amount. Rs.	a.	p.
Anamallai	...	40	547	8	0
Bababudin	...	6	60	0	0
Central Travancore	...	15	185	0	0
Coorg	...	2	30	0	0
Kanan-Devan	...	34	375	0	0
Mundakayam	...	3	187	8	0
Nilgiri	...	11	400	0	0
Nilgiri-Wynaad	...	2	25	0	0
North Mysore	...	1	10	0	0
Shevaroy	...	1	10	0	0
South Mysore	...	16	380	0	0
South Travancore	...	18	180	0	0
West Coast	...	5	260	0	0
Wynaad	...	8	460	0	0
Other Donations	...	1	200	0	0
	Total...	163	3,310	0	0

THE SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT No. 27.

1. The Deputy Director of Agriculture, Planting Districts returned to Quilon on the 4th of December, and left on the 6th to inspect the Rubber Experiment Station at Tenmalai. Mr. Anstead is expected back at headquarters about the 12th of December.

2. MOSQUITO BLIGHT is a serious pest on some of the South Travancore estates recently visited and a controlling factor in all manurial schemes. The time of pruning has some effect on the control of this pest, and at this time of year much can be done by systematic catching of the insects. On one estate visited 500.000 have been caught in the course of two months, and on another 300,000 a month were being caught. This must have a beneficial effect, and protect the flush until it is ready for plucking. Brown Blight and Grey Blight are apt to follow Mosquito attack, and this weakens the bushes and produces a good deal of dead wood. These diseases can be kept in check by picking off the leaves attacked. The consequence is that there is plenty of work for the coolies, and it is better to employ them at this kind of work rather than on unproductive jobs like weeding where the quantity of weed at this time of year is negligible, and can do no harm if left alone. When green dressing crops have been established there is no weeding to be done, and the labour can be concentrated on pest work. Mosquito Blight is undoubtedly the most serious pest of tea in some South Indian districts, and some definite experiments have just been laid down to try the effect of deep draining, and the application of potassic fertilisers at different times and in differing amounts on the control of the pest.

3. THE EXPERIMENT STATIONS.—At the "Coffee Experiment Station" there was no rain during the week. The nights are cold now, and there is a heavy dew; the soil is becoming hard and dry. Chop digging was done over three acres. 333 lbs. of coffee were picked in the second round from 1·3 acres. A small drying ground has been made on which to dry and cure samples from the various plots, so as to obtain some information about the relation of quality to the various manurial and cultural treatments.

At the "Tea Experiment Station" there was no rain during the week. The high land wind experienced at this time of year has begun to blow, and the nights are getting cold These conditions will soon reduce the flush. 550 lbs. of green leaf were plucked from 3·13 acres, a yield of 175·7 lbs. per acre. The *Tephrosia* seed sown last week has germinated and started to grow.

At the "Rubber Experiment Station, Mooply" there was no rain during the week. The work of removing and burning the dead wood caused by *Phytophthora* was continued, and three acres dealt with. The whole Station has now been sown with *Tephrosia* seed. Daily tapping was done on 1,262 trees and 148 lbs. of wet sheet and 22 lbs. of wet scrap obtained, a yield of 0·135 lb. per tree as compared with 0·132 lb. last week.

At the "Rubber Experiment Station, Tenmalai" there was only one light shower during the week, amounting to five cents. Dead wood is being removed from the trees and burned. Daily tapping was done on 391 trees, and 56·5 lbs. of wet sheet and 7·30 lbs. of wet scrap obtained, a yield of 0·163 lb. per tree as compared with 0·191 lb. last week.

(Signed) RUDOLPH D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

NORTH MYSORE PLANTERS' ASSOCIATION.

PROCEEDINGS OF AN EXTRAORDINARY GENERAL MEETING OF THIS ASSOCIATION, HELD AT MR. F. H. HIGHT'S BUNGALOW, BALEHONNUR, ON THE 21ST NOVEMBER.

PRESENT.—Messrs. C. H. Godfrey (Chairman), C. S. Crawford, F. W. Hight, E. W. Fowke, E. L. Poyser, Capt. H. Browne, M. A. de Weck (Honorary Secretary)

By Proxy.—Messrs F. I. Parton, S. L. Mathias, B. A. Chanegowda.

The Minutes of the last Meeting were read and passed.

(1) MR. J. R. VINCENT'S SUGGESTIONS AND THE SPECIAL COMMITTEE'S RECOMMENDATIONS RE. THE LABOUR DEPARTMENT.—These were discussed, and the Committee's recommendations were adopted, but with certain reservations and additional recommendations.

(1) This was agreed to.

(2) Resolved "to support preferably a sliding scale of percentages on sums recovered; 5% on sums under Rs. 50, 10% on sums of Rs. 50 to Rs. 100, and 15% on sums over Rs. 100,

(3) This was agreed to.

(4) That 1% be paid to the Labour Department in all Civil Cases in which the Department fails to recover the money, but, if the money is recovered, that no charge be paid for filing the suit as this is already covered by item (2) as above.

(5) This was agreed to.

SPECIAL COMMITTEE'S ADDITIONAL RECOMMENDATIONS:—

(*a*) "That this Association is in favour of the appointment of the proposed "Labour Commission," and trust the results of its labours may be printed and circulated early in March to Associations, as in coffee districts arrangements *re* next seasons labour are entered into usually at the end of that month, and also "Annual General Meetings" of local Associations take place about the same time."

(*b*) Resolved "that this Association is against any alteration of the Articles of the U. P. A. S. I., that would allow of the rates of subscriptions being raised, but it is in favour of an alteration that would allow of a reduction, from year to year, by the General Committee in such cases as they deem absolutely necessary. Also in favour of the proceeds of the new charges in the Labour Department, according to the scales settled at the Meeting of the 28—11—21, being applied solely to meeting any shortfall in the U. P. A. S I. Budget, and not to reopening any branch or opening any new branch of the Labour Department for the present year."

(2) ALTERATION OF U. P. A. S. I. ARTICLES OF ASSOCIATION.—Our Delegate is instructed to vote in favour of re-passing Mr. J. A. Rich-

ardson's resolution, passed at the Annual General Meeting, altering Articles of Association No. 7 of the U. P. A. S. I.

(3) BUSINESS AT THE U. P. A. S. I. EXTRAORDINARY GENERAL MEETING AND GENERAL COMMITTEE MEETING OF THE 28TH NOVEMBER.—Instructions were given to our Delegate as how to vote on the points discussed.

(4) REPORT OF THE DASARA REPRESENTATIVE.—Capt. H. Browne read his report as follows:—

"Gentlemen,—I attended the Dasara Representative Assembly as your Delegate and read the joint Address of the three Associations. Unfortunately both Mr. Lake and Mr. Kirwan were unable to be present, though Mr. Lake was able to put in an appearance later.

Our Address and the Dewan's reply both appeared in the "Madras Mail," and you will have seen that only two of the items brought up by us were referred to by the Dewan in his reply, namely, 1. The question of Warrants taken out in Mysore being served in British India, and 2. Roads. The clause about warrants was included in the Address by the S. M. P. A. although this Association was not in favour of doing so, this therefore does not interest us, but if you wish me to do so I will read out the Dewan's reply.

'The question of the execution in British India of warrants issued by the Mysore Courts for the apprehension of defaulting labourers and maistries is an important one, and formed the subject of correspondence with the Government of India some years ago. The object in view cannot be secured by legislative action in Mysore, and the Government will be prepared to re-open the question if a detailed statement of the present position, with the necessary statistics, is furnished by the Planters'.

ROADS.—This subject was dealt with at some length in our Address, and appears to have had the desired effect of waking them up a little. The Dewan's reply has appeared as above. We had one or two informal talks with Mr. Bannerji on the subject; our specific complaint about the Kadur-Mudigere road, he said, was being inquired into. Unfortunately there appears to have been some misunderstanding as to the nature of the complaints, which were taken to be directed against the financial side, whereas it was chiefly directed against the Executive. Our complaint, that the money was not spent, was understood by them to mean that the Government did not spend the money, whereas what we intended to imply was that the work was not done.

None of the other questions brought up by us were referred to by the Dewan."

A vote of thanks was passed to Capt. H. Browne for having so ably represented the Association.

(5) THE GRAVE OF THE LATE MR. A. M. ELDER.—Resolved that the Honorary Secretary write to the Collector for information as to the situation of the grave, and that we are prepared to pay the expense of putting same into order.

(6) ALTERATION OF THE PLACE OF MEETING TO SOME MORE CENTRAL SPOT.—Resolved that the next General Annual Meeting be held at Chikmagalur during the first week in April, the exact date to be communicated later.

(7) THE PRESENT STATE OF THE BOOND GHAUT ROAD.—This was included in the instructions given to our Delegate to the U. P. A. S. I.

(8) THE CRIMPING OF COOLIES AND THE BRINGING UP OF THIS MATTER BEFORE THE U. P. A. S. I.—The Association refer Mr. Fowke to the coming visit of the Labour Commission.

(9) THE PRESENT RATE OF PAY AS PAID TO COOLIES IN THIS DISTRICT.—Proposed from the Chair:—"That the Honorary Secretary write at once to the Honorary Secretaries of the S. M P. A., and B. P. A., suggesting a Meeting of the Amalgamated Committee on the 3rd of December at Chikmagalur, to consider the question of the rates of pay for the coming season.

(10) THE ITEMS DISCUSSED AT THE LAST MEETING.—This was brought up by Mr. E. L. Poyser. The Minutes of the last Meeting were read and confirmed after explanation of same to those who had not been present. The chief item referred to by Mr. Poyser was referred to the Committee, who dealt with same in a manner that met with his support.

The Meeting terminated with a vote of thanks to Mr. Hight for the use of his bungalow.

WHAT THE SCIENTISTS ARE DOING?

Mr. Anstead, the Deputy Director of Agriculture, Planting Districts, in the course of an interesting monthly report for October, 1921, says:—

Tea statistics to hand during the month show that during the official year, 1920-21, shipments from the whole of India declined from 379 million lbs. to 286 million lbs., a drop of 25 per cent. Export from South India, however, advanced from 29½ million lbs. to 30½ million lbs. The export of Rubber from the Madras Presidency during September was 227,826 lbs., and of Tea 1,637,810 lbs.

Two reports with advice as to manuring were written during the month, based on soil analyses made by the Government Agricultural Chemist, one for Lucky Valley Tea Estate, Nilgiris, and one for Merchiston Tea Estate, Travancore.

At the Coffee Experiment Station, 5·66 inches of rain was recorded during the month distributed over 14 days, as compared with 6·59 inches last year. Most of this rain fell during the first half of the month. Advantage of this rain was taken to sow green dressing seeds. The crop is beginning to ripen up, especially that produced by the early blossoms brought out by the January rain and a round of Fly-Picking has been done.

Leaf disease is prevalent. The plot sprayed in May with 1% Bordeaux Mixture shows the advantage of this treatment. Plot 23 B was sprayed a second time during the month. The plots of *Cassia hirsuta* cut over last month have started to grow again, that cut high being much more vigorous than the one cut low down. Another crop will be obtained before the hot weather. *Tephrosia candida* is being left for seed, and is now forming pods. *Crotolaria semperflorens* seed was sown during the month both in the open and among the coffee, and has germinated fairly well. About 90 per cent. of the *Erythrina* cutting put out in the coffee for secondary shade have put out shoots. Manures have been applied to the plots in the manurial series, and supplies have been 'kooked' and mulched. A small drying ground has been prepared for the treatment and curing of samples of the forthcoming crop.

At the Tea Experiment Station, wet weather was experienced throughout the month, and 13·84 inches of rain were recorded. 1,504 lbs. of green leaf were plucked during the month. The pruned plots are making good growth, and will be ready for tapping next month.

Green dressings were sown in the pruned plots, and in most cases have germinated well. This appears to be the best time to sow green dressings as seed sown in former months has not succeeded. Even now trouble is encountered with insect attack on the young plants. Hand weeding has been done to protect the young green dressing plants as far as possible.

A new nursery has been established to give a stock of plants for supplies. The seed used was obtained from the seed bearers on the station.

Towards the end of the month there was a slight attack of Mosquito Blight again on the China, and China Hybrid Tea, but it was not serious.

At the Rubber Experiment Station, Mooply, 12·57 inches of rain was recorded distributed over 16 days as compared with 18·86 inches last year. The trees have not recovered from the severe attack of *Phytophthora* experienced this year, and the foliage is very scanty, and there is a great deal of dead wood. In the seed selection plot, the plants have made good growth, and the first round of thinning out has been done. The special seed obtained from Heneratgoda have made a splendid start. 41 pits have been planted spaced 17 feet by 17 feet.

Tephrosia candida in plot 16 was lopped, and a yield of 3,750 lbs. of fresh material per acre obtained. Cuttings of *Indigofera* (probably, a variety of *tinctora*) from the Wynaad have been planted in a portion of the seed selection plot, and *Tephrosia* has been sown in the rest.

The *Centrosema plumeri* has begun to flower.

Daily tapping was done throughout the month, and 514 lbs. of wet sheet and 93 lbs. of wet scrap obtained from 1,262 trees, a yield of 0·48 lb. per acre as compared with 0·36 lb. last month.

At the Rubber Experiment Station, Tenmalai, 17·16 inches of rain was recorded, distributed over 24 days, as compared with 24 79 inches last year.

Patch canker is very prevalent, and 79 cases were treated during the month.

Daily tapping was done on 395 trees, and a crop of 245 lbs. of wet sheet and 32·8 lbs. of wet scrap was obtained, a yield of 0 703 lb. wet rubber per tree as compared with 0·64 lb. last month.

On examination of the yield of individual trees has been begun, the trees being divided into four classes as regards yield. This is to aid in thinning out and levelling up the plots. At present, the plots show a good deal of irregularity.

INDIAN TEA ASSOCIATION,

Assam Branch.

Speaking at the Annual Meeting of the Assam Branch, Indian Tea Association, at Jorhat on 31st October last, Mr. P. H. Carpenter, Chief Scientific Officer, gave an interesting *resume* of the work of the Scientific Department.

Mr. Carpenter spoke as follows:—

A fairly ambitious programme of work was laid down at the beginning of the year, and considerable progress has been made in carrying it out. I propose to mention the more important items:—

An investigation of the effect of different forms of manuring upon the composition of the tea plant was made. The experiments were carried out upon tea seedlings grown in sand cultures. It was found that different forms of manuring resulted in a different rate of absorption of the individual ingredients of the manure. Between 68%—43% of the quantity of nitrogen supplied was absorbed by the plant, and the manures in which was the greater quality of potash showed the greatest percentage of nitrogen absorbed. The average amount of potash absorbed by the plant was 95% of that supplied.

The effect of potash manures was very marked in keeping the plants free from leaf fungus diseases.

Work has been continued in respect of mosquito blight, whilst much useful information has been obtained towards the obtaining control of the insects so far as attack upon tea is concerned, yet the study has opened up other fields for research, and we have been led to study the effect of potash manures on different types of soil, with a view to ascertaining why the application of potash to some soils will result in prevention and cure of mosquito attack, whereas on other types of soils, and particularly those of a heavy nature, show little or no practical result. The addition of potash salts to a soil results in the liberation of different soil bases, some of which such as the aluminium salts are toxic to the plant, other bases such as iron and lime are also liberated. The effect of the presence of large quantities of lime is to render the tea bush more resistant to mosquito. It is, however, difficult to generalize in these matters, since each type and class of soil needs to be treated upon its own merits, and there can be but little doubt that different soils require considerably different treatment, but it is increasingly evident that good drainage is one of the chief necessities for every type of soil. The Entomologist has satisfactorily dealt with two matters in connection with the mosquito; one that the horn on the back of the mosquito is an olfactory organ, which would seem to point to the likelihood of the mosquito locating his food supply to a considerable extent by the sense of smell, and two, it would now seem to be definitely determined that the mosquito attack exerts no permanent physiological effect upon the tea bush. Whilst this investigation, as I remarked upon a previous occasion, does not affect Assam to any considerable extent, yet there are many instances of mosquito attack in the valley, and it behoves all planters to recognise the attack when it first begins, so that steps can at once be taken to prevent the spread of the trouble. No instance of its recent appearance should be ignored, but the information should be sent to this Department. A considerable amount of time has, during the year, been devoted to the study of soil acidity, with the object of determining what is exactly meant by the term. There seems to be no doubt that this is due to several causes, but one cause that is of considerable moment is the presence of aluminium salts in the soil solution. This is particularly so in the tea soils of North-East India, in which the quantity of lime is usually deficient, and aluminium in a fairly readily soluble form is present in large quantities, owing to the peculiar nature of climatic conditions which hasten the withering of the soil. The presence of lime in such a soil has been shown to largely increase its fertility so far as green crops are concerned. In connection with the use of lime, a number of experiments have been carried out to ascertain the biological effect of the addition of lime to a soil as measured by the accumulation of nitrates. It was found that not only does lime exert a very considerable influence in the greater accumulation of nitrates, but that soil moisture conditions are of equal if not of more paramount importance. A soil being too wet or too dry does not permit of the accumulation of nitrates, but for each soil there appears to be a definite optimum water content which, in the case of the Tocklai soil, is the same as the optimum water for the best mechanical condition, this has necessitated the study of the effect of various water contents of the soil, and an article appearing recently in the Quarterly Journal has shown the very great effect upon soil condition of the variation in the water content, and the necessity for cultivating a soil when it approaches optimum water conditions and the inadvisability of doing so when more or less water saturated conditions prevail. There are, I know, many practical difficulties besetting any attempt to hoe only when the soil is in suitable condition, but I am glad to note that these difficulties are being gradually overcome. In order to help in this direction, I would point out that whilst the tilth of all soils is damaged by cultivation under unfavourable condition, yet the ill effect is much more marked on heavy clay soils than on sandy soils, and it is the former type that should receive first consideration in this matter.

During the past years, from the first inauguration of the Scientific Department, the primary consideration has always been the improvement of crop returns as measured by the increase in yield per acre of tea, and the Department has dealt successfully with this matter both in connection, for instance, with the insistence upon the necessity for different forms of manuring and different forms of pruning, prevention and control of pests and blights to suit certain definite conditions of climate, soil, situation, etc. The result has been that with the increased knowledge a very considerable increase in crop return has been obtained, and also a very great saving has been effected by the correct choice of manures. There has, however, now come a time when the question of quality has become of greater moment than that of quality, and the Department has in consequence turned its attention to the importment subject of quality of tea. This is a very complex subject – it involves many various chemical reaction about which little or nothing is known, and a complete elucidation of the problem cannot be hoped for until more knowledge of the purely scientific facts connected with the changes that take place at all stages of the leaf development, and reactions that occur after the leaf has been plucked, and during all the stages of manufacture. The work of the Department in this direction has during the past year had to be confined to an endeavour to obtain a greater knowledge of the constituents of the tea leaf. We have been able to show that the tannin does not exist in fresh leaf in the form of an astringent body, but that it exists in combination with some other substances which undergo decomposition by hydrolyses into two substances, one of which is astringent tannin. It has, however, become evident that such astringent tannin, which is produced during the withering process, readily undergoes decomposition either to condensation products which are largely the cause of colour and thickness of liquor but which possess no pungency, and also it appears to undergo decomposition into a substance that possesses neither colour nor astringency, and that does not assist in the production of thickness of liquor. The decomposition of tannin has been receiving the continued study of the Department.

Whilst the above work has been carried on, an extensive number of analyses have been made of fresh leaf, to ascertain how different forms of pruning and different jats of tea and different times of the year affect the composition of the leaf. The results of the work will be published in the Quarterly Journal during the forthcoming year.

An important article dealing with the depredations of boring beetles on woods suitable for tea chests, and of the results of a treatment with rosin varnish, has been published in the Quarterly Journal of this year. Green fly also has been receiving the attention of the Entomologist, and it was noticed that sections where the effect of Green fly appears to be the greatest seems to contain the insect in least numbers, and it is possible that, as in the case of the tea mosquito, the condition of the bush is the all important factor.

The Entomologist has, however, this year been mostly occupied with the arrangement and examination of records dealing with the work carried out on mosquito blight. These records are very voluminous, and it is impossible in this report to do more than refer to them. A full report upon the work is now in preparation and will be published, it is hoped, during the early part of next year.

The Entomologist has written an interesting article dealing with the pupæ collected when forking on the Cinamara Tea Estate during the last seven years.

The collection includes 30 different species, parasites of many of them have also been found. An interesting point in connection with this work is the noticeably few tea pests that now are to be found at Cinnamara, due doubtless in a great measure to the systematic collection of pupæ that has been adopted.

The Mycologist was on leave until June. Work has been continued throughout the year on leaf disease, and articles dealing with Brown and Copper blights are appearing in the Quarterly Journals of this year. The Mycologist also commenced an investigation of the micro-organisms present on tea leaf, and those to be found in tea factories. Several organisms have been isolated, and two yeasts and one bacteria seem to be of general distribution. The effect of the organisms on fermenting tea is being investigated, it is as yet too early to state with what results. It is, however, noticeable that leaves placed in an atmosphere of Chloroform for 3¾ hours when transferred to sterile medium produced a vigorous growth of organisms showing that the Chloroform treatment had not sterilised the tea. Whereas when formalin was employed sterilization was obtained, and in this latter case no fermentation of the tea took place.

Field work has yielded interesting results. Of the two plots of tea, one pruned annually and the other pruned biennially, it will be remembered that the area unpruned last year gave a large increase over that pruned. This was only to be expected. This year both plots were pruned; the previous year's unpruned tea being pruned to 10," whilst the annually pruned tea was cut to 14". The ratio of yields of the two kinds of pruning are as follows:—

		Annual 14" pruned.	Biennial 10" unpruned.
31-3-21	...	10	1
14-4-21	...	4	1
28-4-21	...	3	1
12-5-21	...	2	1
26-5-21	...	3	2
16-6-21	...	4	3
30-6-21	...	5	4
30-7-21	...	6	5

After which date they were practically equal in yield, although the annual pruned still maintains a slight superiority. In the two years to date the total crops have been

Annual pruned	...	... 12·9	mds. pucca tea per acre.
Biennial pruned	...	... 18·7	

An experiment has now been carried on for some years to ascertain whether soils containing large quantities of lime were deleterious for tea. The experiment indicates that tea will grow satisfactorily on soil to which 200 mds. of quicklime or 400 mds. of crushed limestone has been added. It was noticed that the fertility of the soil, as measured by the growth of green crops, increased with the increasing quantities of lime added to the soil.

A preliminary experiment to determine the relative value of different forms of plucking was commenced this year. The results of the experiment will be published later.

INDIAN TEA ASSOCIATION.

ABSTRACT OF PROCEEDINGS OF TWO MEETINGS OF THE GENERAL COMMITTEE, HELD AT CALCUTTA, ON THE 8TH AND 22ND OF NOVEMBER, 1921.

CORRESPONDENCE WITH THE INDIAN TEA ASSOCIATION (LONDON).—Letters, dated 13th and 20th October, from the Indian Tea Association (London) which had been circulated to the Committee, were now to be recorded. The principal subjects dealt with in these letters were the following:—

(*a*) The Imperial Shipping Committee—The Hague Rules, 1921 and the Eastern Trade Bill of Lading.—Reference was made, in the proceedings of last meeting, to papers forwarded by the London Association in connection with a proposal that the Hague Rules, 1921, should be adopted as between shipowners and shippers in preference to legislation on the lines of the Canadian Water Carriage of Goods Act; and it was mentioned that the various Associations interested in the Eastern trade did not approve of this proposal.

Further papers in connection with the subject were forwarded with the letters of 13th and 20th October. It was noted that a special general meeting of the London Chamber of Commerce had been held on 7th October to consider the Hague Rules; that a resolution approving of the Hague Rules had been moved, and that an amendment had been put forward urging that legislation should be introduced as suggested by the Imperial Shipping Committee—*i. e.*, on the basis of the Canadian Water Carriage of Goods Act. No decision was come to, the discussion being adjourned.

(*b*) Teas in merchantable condition.—This matter was referred to in the proceedings of last meeting in connection with a conference of interested parties which was being convened by the Tea Brokers' Association of London and the Tea Buyers' Association, to discuss the question of the condition of packages when handed to railway companies from bonded warehouses. In the letter of 20th October, it was mentioned that the Conference had been held and that a resolution in the following terms had been adopted:—

This meeting quite appreciates the great difficulties which the merchants have had in the matter of packages during the last few years, and, while they are glad to learn that these difficulties are now being removed, would like to emphasise the necessity for packages of tea being adequately metal-lined.

This meeting is also of the opinion that most of the friction which now exists would disappear if the importers would agree to case packages, which the carriers refuse to forward (for delivery in the United Kingdom) without casing.

(*c*) Regulation of Sales.—The General Committee recently asked the London Association for particulars as to the method adopted in connection with the regulation of sales in London, and a full explanation of the matter was given in the letter of 20th October, and had been noted by the Committee with much interest.

(*d*) Scientific Department—(*i*) Agricultural Chemist.—With the letter of 20th October, there were forwarded copies of correspondence between Messrs. Begg, Roberts and Co. and the London Association regarding an agricultural chemist

> whom they desired to engage. It had been suggested, in discussion with Mr. Carpenter, the Chief Scientific Officer, and Mr. Cooper, of the Scientific Department, while these officers were on leave, that when a tea company desired to engage a scientific officer on their own account it would be advantageous that he should be engaged by the Department and lent to the company, the latter paying the whole expense involved. He would thus have the benefit of the knowledge already obtained by the Department and of any further discoveries; while the experience he would acquire would be at the service of the Department. Mr. Carpenter had pointed out that this would give effect to his suggestion that the Scientific Department should have officers in control of different areas who would see that his recommendations were carried out.

The London Committee approved of this proposal, but they had decided to refer it to the General Committee for consideration.

The Committee now discussed the question. They were disposed to agree with the proposal, but as Mr. Carpenter was to be in Calcutta at the time of their next meeting they decided to defer it for consideration until it could be discussed fully with him. Mr. T. McMorran, late Chairman of the London Association, was now in Calcutta, and it was expected that by that date Mr. G. Kingsley, the present Chairman of the London Association, would also have arrived; and it was agreed that they should be invited to attend the meeting.

> (*ii*) MOSQUITO BLIGHT.—There was also forwarded with the letter of 20th October, copy of a letter, dated 30th September received by the London Committee, from Mr. A. O. Wyper, Managing Director of the Baraoora (Sylhet) Tea Co., Ltd. This urged the necessity of doing more to find a means for dealing with mosquito blight. It was pointed out that the Scientific Department were doing their best to find some means of coping with the blight, but it was suggested that the Association should go further and offer a large reward to anyone who could bring forward a practical scheme for dealing with it.

The General Committee decided to defer this matter also for discussion with Mr. Carpenter at their next meeting.

GOVERNMENT COOLY DEPOTS.—A letter, dated 25th October, had been received from a member of the Association referring to the Committee certain comments which had been addressed to that firm by one of their garden managers regarding the system whereby cooly detention depots are maintained by Government at Tezpur, Desangmukh, and other places. This system was criticised mainly under the following heads: —(*a*) the method adopted by Government of adjusting income to expenditure on these depots—it was stated that Government merely divided up the total sum expended on the depot in one year amongst the number of persons passing through during that period—and (*b*) the delay, amounting in cases to as long as one year, in issuing bills from the depots.

The members, in forwarding this letter to the Committee, added that their own views were that these Government cooly depots, originally founded as segregation camps to minimise the spread of epidemics and infectious diseases, were now of doubtful utility, as all coolies forwarded to Assam under the Tea Districts Labour Association were inoculated. They believed that the Tea Districts Labour Association were willing to consider the question of taking over the depots from the Government, and maintaining them on a proper economic basis in accordance with the Government Rules and Regulations.

The Committee considered the position as explained, and they directed that, in the first place, the letter should be referred to the Tea Districts Labour Association and the Assam Labour Board for their comments on the various points raised in it.

INDIAN FISCAL COMMISSION.—A letter, dated 14th October, 1921, had been received from the Secretary, Indian Fiscal Commission, enclosing a list of questions which had been prepared for submission to witnesses giving written evidence before the Commission. The views of the Association were asked on any points arising out of, or in connection with, this questionnaire that they might wish to deal with.

The Committee understood that the questionnaire was being thoroughly examined by a Sub-Committee of the Bengal Chamber of Commerce, and the Chairman arranged, in the first place, to take an opportunity of discussing the matter informally with them. So far as the Association was concerned, the Committee considered that any evidence given to the Commission might be limited to dealing with the export duty on tea, and the import duty on such items as machinery and other materials used by the industry.

CORRESPONDENCE WITH THE INDIAN TEA ASSOCIATION (LONDON).—Letters, dated 27th October and 3rd November, from the Indian Tea Association (London) were before the Committee for consideration. The principal subjects dealt with in these letters were as follows:—

(*a*) SCIENTIFIC DEPARTMENT—MOSQUITO BLIGHT.—This matter was referred to in the proceedings of last meeting, and in their letter of 3rd November, the London Committee now stated that they had been in communication with the Chemical Warfare Department of the Ministry of Munitions and with the Lister Institute of Preventive Medicine. The latter had referred the Association to the Rothamsted Experimental Station, Harpenden, as being likely to give up-to-date information regarding experiments for the extermination of the blight; and there was forwarded a copy of a letter received from Professor A. D. Imms, of the Institute, on the subject. In view of the lines on which the Scientific Department has been working in connection with mosquito blight for some time past, the following extract from the letter of Professor Imms was of particular interest:—

I may say that we are engaged on analogous work here relating to Aphides or "green-fly," which belong to the same order as "Mosquito Blight" and, like the latter, are sucking and piercing insects. Our efforts are mainly directed to discover means of control other than by spraying with insecticides. In the first place we are trying to discover (1) the conditions most favourable to the rapid multiplication of the pests: (2) whether any races of a plant are less susceptible to infestation than others—with field beans, for example, we find great differences in this respect: (3) whether it is possible to alter the condition of the cell-sap of the plants, by manurial treatment, and render it more or less distasteful to the "green-fly," (4) whether it is possible to cross a variety more or less immune which has low economic value with a highly susceptible variety in general use.

It had been hoped that Mr. T. McMorran, late Chairman of the London Association, and Mr. G. Kingsley, the present Chairman of that Association, would be present at this meeting, to discuss with the Committee several matters in connection with the Scientific Department, but Mr. McMorran was absent from Calcutta, and Mr. Kingsley had not yet arrived. The Committee directed, therefore, that a meeting with them should be arranged for a later date.

(*b*) *British Empire Exhibition 1923.*—With the letter of 3rd November there were forwarded papers in connection with the British Empire Exhibition which it was proposed to hold in 1923. These had been before the London Committee, who had decided to defer consideration of the question of exhibition until more information was available, and until it was known whether the Government of India intended to support the Exhibition; and the request was made that the General Committee should forward to the London Association any information which might be received as to the intentions of the Government of India in this direction.

The General Committee had not been addressed direct by the Government of India on the subject, but it was understood that the Bengal Chamber of Commerce had received certain papers regarding it from Government, and the Secretary was instructed to enquire as to the position. It was believed that the opinion had been expressed that the Exhibition would probably not be held until 1924.

(c) *Ocean Freight.*—It was stated in the letter of 3rd November that enquiry had been made as to the actual sailing date of the s s. *Maidan*, and the rate of freight on tea carried by her, it being understood that, although she completed loading on the 30th September, she did not sail until 1st October, being declared an October sailing, and the October rate of freight —which was higher than that for September—being charged. It was added that the London Committee understood there had been a discussion with the Committee in Calcutta regarding the matter.

This subject was referred to in the proceedings of the meetings of 25th October and 8th November in connection with the interpretation of the term "clear," used with regard to the determination of the monthly tea rate, which is applicable to all vessels actually clearing during the month in question ; the Conference and the Committee agreed that the expression should be interpreted to mean the day on which a steamer receives port clearance. The enquiry of the Conference in this connection had, in fact, arisen out of the circumstances in connection with the s.s. *Maidan*, and the Committee appreciated that the interpretation now agreed on would, if it had been applied in the case of that vessel, have meant that the tea rate in respect of tea shipped in her would have been the September rate instead of the higher October rate. But it did not seem to them that they could press for the application of the interpretation being made retrospective. And on the question of principle they considered the interpretation now agreed on to be the most satisfactory. It was understood, indeed, that there had been a previous case in which the former practice of accepting the date of sailing, instead of the date of port clearance, as defining the tea rate applicable, had been in favour of tea shippers, and enquiry was to be made on this point.

International Labour Conference: Draft convention and recommendation concering unemployment—Public Employment Agencies:—The Committee considered a letter, dated 14th November from the Bengal Chamber of Commerce. It invited attention to certain papers received, through the Government of Bengal, from the Government of India with reference to this draft convention and recommendation. Article 2 of the draft convention provided that each member ratifying it should establish a system of free public employment agencies under the control of a central authority, and that, where both public and private free employment agencies exist, steps should be taken to co-ordinate the operations of such agencies on a national scale. The Government of India had, in this connection, drawn the attention of the Government of Bengal to the system of labour recruitment for tea gardens in Assam, which was, of course, conducted under the general supervision of the Assam Labour Board. After briefly describing the system of recruitment by sirdars, the Government of India proceeded:—

This system has been evolved as the result of numerous enquiries and Commissions, and was strongly recommended by the Labour Enquiry Committee of 1906. It is believed to encourage emigration by families, and, since the activities of recruiters are carefully supervised, the system generally is believed to be free from serious abuse. But it will, no doubt, be re-examined by your Government in the light of the draft Convention and Recommendation referred to in paragraph 1 of this letter. In the event of the retention of the system being recommended, I am to ask whether it would be advisable to experiment with public employment agencies existing side by side by the garden sirdar system in localities from which the garden labour is usually recruited, and if so, in what way the operations of the two systems could be co-ordinated, as suggested in Article 2 of the Convention. The Government of India will, therefore, be glad to have the opinion of your Government on this question.

In forwarding the papers to the Association, the Chamber stated that they had informed the Government of Bengal that the Association were being asked to consider the points thus raised.

The Committee thought that the matter might be referred for consideration to a Sub-Committee, and they appointed the Chairman, the Vice-Chairman and Mr. Lennox for this purpose. It was understood that the question had already been before the Assam Labour Board, and the Chairman arranged to obtain, for circulation to the Sub-Committee, a copy of a note prepared on the subject by the Chairman of the Board.

EXPORTS OF TEA FROM INDIA.—In connection with the monthly circular issued by the Association giving particulars of the exports of Indian tea, a letter of 15th November from the Darjeeling Planters' Association referred to a suggestion made by a member of that Association that the reports would be more interesting if comparative figures were given for 1913, so as to allow of the existing position being compared with the pre-war position. The Committee saw no objection to the adoption of this suggestion, and they directed that effect should be given to it.

AGRICULTURE AND DISCONTENT.

In his address on Labour, Capital and Wages to Section F (Economic, Science and Statistics) of the British Association,* Mr. W. L. Hitchens referred to the real solution of the problems of industrial unrest as being entirely a moral one, combined with clear understanding of economic truths on the part of both Labour and Capital. He then went on to discuss the fundamental wage, or the wage of unskilled labour, stating that it should be a living wage—that is, a wage suitable to the development of the physical, moral and intellectual attributes of the citizens of a free country. But he then hastened to add that the living wage cannot be based on any given standard, and is bound to fluctuate at different periods.

However true this may be, it does not assist greatly in showing how the present condition of industrial unrest can be improved, and it is somewhat surprising that neither in this address nor in the one on Economics to Section M. (Agriculture) is any reference made to the ballasting influence of organized agriculture.

No country, nowadays, which is purely agricultural, can be great; but conversely, no country which is mainly industrial can be peaceful or healthy, and must consequently, decline. So that it would appear important to maintain a proper ,balance of agricultural and industrial employment in every country, not merely in respect of the supply of good and raw materials for manufacture—which are generally regarded as the main reasons for developing agriculture—but rather in respect of contented employment and good citizenship.

In this broad economic sense agriculture is used to mean the ownership and cultivation of land by the individual, such as one finds in France and most islands of the West Indies: Ownership of land in reasonably large areas with labour-saving machinery; ownership in very small areas with good organization. Agriculture under these conditions is the greatest safeguard against national unrest. England, of course, is handicapped on account of her home territory being totally inadequate for her population, and almost unconsciously, this truth has been manifested by the emigration and colonial policy of the last few centuries. It would appear likely that emigration from England in future years will be greater than it has been in the past.

But even in a country like the United States, which has plenty of land, the maintenance of an agricultural ballast is becoming a serious difficulty. Only recently, O. F. Cook † has called attention to the fact that labour and capital are steadily concentrating in the cities, and it appears that one cause of this is the fact that race deterioration in American cities is so great that immigration of healthy people from the country is an absolute necessity to prevent urban decay.

To prevent migration from the country to the city, the city must be brought to the country; but not in Lord Rosebury's sense. It is not theatres

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*The British Association for the Advancement of Science at Edinburgh: Abstracts of Presidential Addresses: *Nature*, September 8, 1921.

† 'City and Country' by O. F. Cook in the *Journal of Heredity* for March and April, 1921.

that attract the farmer, but money and scope for genius. Often farming does not pay, even in normal times, while city businesses are flourishing. As Cook points out, the American producer is largely in the hands of the middleman, while the speculator reacts on the producer, causing violent fluctuations in prices. As Cook says, a commercial system is required in agriculture 'to stop the present leakage between producers and consumers . . . . a stabilized marketing system is required.'

In spite of being regarded as a proverbial grumbler, the farmer (or planter) usually cheerful and contented. Those who are not, sell out and migrate. Hence, given proper State protection, agricultural communities would increase rather than decrease, and form the most contented and sober-minded part of the nation's population.

In agricultural development (*i. e.*, increase in the number of farmers, small holders, etc.) the great secret is marketing. It is necessary to have some system whereby agricultural products can be fed to the markets without market glutting. This, according to a recent Circular‡ can be done by proper organization.

Present space will not allow description of the methods proposed, but anyone interested in this important subject can peruse the Circular itself. 'Can the peaks and valleys in prices, which are injurious alike to producer and consumer, be reduced by more efficient marketing methods'? This Circular says they can.

To return to the main theme of the stabilizing influence of agriculture in the economy of the State, it is of interest to note that in Central Europe to-day such development as is taking place is not in the direction of industrialism, but of agriculture. It is not only a question of food supply. It is more fundamental even than that. Rome fell when its agriculture decayed, and Central Europe fell when industrialism was at its zenith. Agriculture is the safest foundation, and always will be.

Hence people in the great cities of the world must be careful when they talk lightly of the farmer or the planter. One of the reasons why the British Empire is necessary (and luckily possible) is because the Dominions are principally agricultural countries. At first this may suggest their surplus food-production value as being of prime importance. But it is really more fundamental than that. It is because the economic complexes of the Dominions are far simpler, and in some ways healthier than that of the mother country, and because the Dominions and the Colonies possess large quantities of land for those who are desirous and qualified to utilize it.—*Agricultural News*.

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‡ 'The Road to Better Marketing: Circular No. 136, The University of Wisconsin College of Agriculture.

GIANT GRASSES FOR PAPER MAKING.

Hitherto tropical and sub-tropical countries have relied mainly for their supplies of paper-making materials on the forests of the northern temperate regions. Wood pulp, prepared from spruce and other timbers in the United States, Canada and Scandinavia, is, for example, imported into India and Australia for the manufacture of the cheaper kinds of paper, whilst countries such as those of tropical Africa, in which manufacturing industries are in a less advanced state, import practically all their paper ready-made. In almost all these countries, however, there are native products which could be used for making paper, and in some cases a survey of the materials available is being undertaken.

Bamboos appear to be the most promising source of paper-pulp in India and the Far East, whilst in other countries large grasses, many of which are similar to bamboos in appearance, exist over extensive areas and could be used for the same purpose.

In the current number of the Bulletin of the Imperial Institute a comprehensive account is given of these giant grasses. Preliminary trials have proved that many of them give a satisfactory yield of pulp, which produces good paper. In the case of the so-called Elephant grass of eastern tropical Africa, these results have been confirmed by large-scale trials and the material has been used in Uganda for Government printing paper, which is of excellent quality. Such grasses, owing to their bulk, could not be exported to Europe at a profit, but it is suggested that they might be employed locally for paper-making or for conversion into pulp for export.

INSECT PESTS OF RAW COCOA.

Most foodstuffs when stored are liable to be attacked by insects, and the damage thus caused amounts in the aggregate to millions of pounds every year. Perhaps the best known pest of this kind is the grain weevil, which destroys enormous quantities of wheat and other cereals, particularly in countries such as Australia and Canada, where vast stocks of grain are stored while awaiting shipment. The depredations of such insects extend even to raw cocoa, and it has been estimated that the proportion of "grubby" beans in the world's production of cocoa is on the average from one to two per cent. This subject was considered at the Rubber and Allied Industries Exhibition, held in London this year, when Mr. A. W. Knapp, of Messrs. Cadbury Bros. Ltd., read an interesting paper on Insect Pests in the Cocoa Store, which is printed in the current number of the Bulletin of the Imperial Institute. The most frequent pests are the caterpillars of small moths, particulary those of the Mediterranean flour moth, which are often found in mills and granaries; minute beetles too are commonly present. Various methods have been tried for destroying the insects attacking the cocoa, including fumigation with chemicals and spraying with insecticides. The most effective method, however, appears to be the application of heat, since this kills the eggs as well as the larvae and adult insects, whilst, provided the temperature of 160°F is not exceeded, the cocoa is not detrimentally affected.

LETTERS TO THE EDITOR.

The Planters' Chronicle is not responsible for the opinions of its Correspondents.

The Moplah Rebellion.

Dear Sir,—Owing to the Moplah Rebellion, Managers of Rubber Estates in the Ernaad Taluk of South Malabar have been reluctantly obliged to dispense with the services of most of their Writers and Clerks.

As long notice as possible was given, but in many instances these men have been unable to obtain work, and having lost all their property through Moplah looting are now in very reduced circumstances.

May we ask Planters and others requiring Clerks or Writers to communicate with either of the undersigned ; so that these sufferers from the Rebellion, may have a better chance of securing billets falling vacant on Estates and in Offices.

Yours faithfully,

(Signed) C. E. M. BROWNE,

,,) R. LESCHER,

Malabar Club,

Calicut.

WANTED.

Billet wanted by Planter, of thorough experience, as Superintendent of Tea, Rubber or Coffee Estate ; has excellent testimonials and references.

Box No. 107,

c/o "Planters' Chronicle."

The Planters' Chronicle.

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(Secretary's Registered Telegraphic Address "U. P A. S. I.," Coimbatore.)

Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" COFFEE.

(BY CABLE.)

London, 9th December, 1921.

128s./- per cwt. Market Firm.

RUBBER MATTERS.

THE MERLIMAU DECISION.

In our issue of 26th November last, we published an article from the *Times of Ceylon* which would appear to have been written under a misapprehension. A cable had been received to the effect that the Merlimau appeal had been successful, and the wording of the cable was such that there is every excuse for our contemporary having concluded that the long deferred appeal by the Crown against the decision of the Income Tax Commissioners had been upheld, and that the case had gone against the Merlimau Rubber Estates Limited.

The London Correspondent of the *Times of Ceylon* would have made things clearer if he had said the Merriman decision had been upheld, for this is what has happened, and the appeal by the Crown has been dismissed. We republish in full in this issue the report of the appeal as it appears in the *India Rubber Journal* so that our readers may make themselves ***au fait*** with the position.

The result of this case has been anxiously awaited for some three years, and even now that we have got Mr. Justice Sankey's judgment it is doubtful whether we may regard the matter as settled since an appeal by the Revenue people is still possible and is in fact very probable. The decision either way must have a far reaching effect, and we must agree with *Truth*, which says in Mail week, that the case is not one for legal hair splitting. It is preposterous that this litigation should be continued at the public expense when a settlement fair to all parties might easily have been arranged with the Rubber Growers' Association two or three years ago, but for the pig-headedness of the Somerset House Officials.

RESTRICTION IN MALAYA.

The *Madras Mail* publishes a cable from its own correspondent to the effect that the Malaya Trade Commission report recommends Government restriction of the output of rubber on condition that the Netherlands Indies and Ceylon join; failing this to raise a Government loan in London to assist estates, also the formation of a land bank. There is nothing new in any of these suggestions, and to us it seems rather a futile report, relying as it does on conditional support by the Dutch and Ceylon. When we read that an important minority favoured a policy of *laisser faire*, it becomes more and more obvious that no such scheme can be successful. First there is an important minority against it, then there will be an important minority in the N. E. I., and Ceylon against coming in so that eventually it will be a case of so many per cent in London will go on with the scheme if so many per cent in other countries agree, and, of course so many per cent will not agree, and the force will presumably be repeated again. If Malaya is out to save her main industry she should boldly advocate Government control of output. If the D. E. I. and Ceylon benefit by not doing ditto that ought not to influence her. In helping others she helps herself, and if she continues to be afraid of acting without Ceylon and the Dutch she will find some day that she is not able to control matters as she might now do.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Coimbatore,
14th December, 1921.

SECRETARY'S REPORT No. 38.

1. TUTICORIN HARBOUR COMMITTEE.—No Report was issued last week, the Secretary being away from Head-quarters attending the Meeting of the Tuticorin Harbour Committee. This Committee is still continuing its work, making further investigations, and its final report will not be submitted to Government before the end of next month.

2. ROAD BOARD.—The Secretary attended a Meeting of the Road Board in Madras, on Monday, 12th December. A full Confidential Report has been submitted to the Executive Committee. It may be stated here, however, that owing to the present financial position of Provincial Funds, which, as may be seen from the *Madras Mail* of yesterday's date, shows a probable deficit of Rs. 113 lakhs on the current year's Budget, the Government not only have no funds for the further improvement of Roads, but the proposed allotment for the Trunk Roads already scheduled will have to be reduced by at least 20%. It is unlikely that any further roads will be made fit for Motor lorry traffic for a long time, and it is probable that further deterioration will be the result of this reduction of expenditure.

3. HOMEWARD BILLS OF LADING—HAGUE RULES.—A letter addressed by the East Indian Grain and Oilseed Shippers' Association of London to the Indian Tea Association on this subject is being published in full in this week's *Planters' Chronicle*, together with the text of a resolution passed by the London Chamber of Commerce, approving of legislation based on the merging of the best points of the Hague Rules into the best points of the Report of the Imperial Shipping Committee.

4. LABOUR COMMISSION.—The Members of this Commission met at the U. P. A. S. I. Office on Saturday, 10th instant. They left Coimbatore the next morning to commence their first tour of investigation and inspection. The programme of their second tour, which commences on the 3rd January, is under revision with a view to extending their visits in Planting Districts.

5. SECRETARY.—Mr. H. Waddington is expected to arrive in Coimbatore on or about the 24th December.

6. EXECUTIVE COMMITTEE.—Mr. J. R. Vincent having resigned, Mr. A. C. Morrell has taken over the duties of Active Member for Rubber.

On election by the Executive Committee, Mr. E. Lord has accepted the post of Member-in-waiting for Rubber, *vice* Mr. A. C. Morrell; and Mr. C. E. Abbott that of Member-in-waiting for Tea, *vice* Mr. A. S. Dandison resigned.

(Signed) C. H. BROCK,

Acting Secretary.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT No. 28.

The Deputy Director of Agriculture, Planting Districts, returned to headquarters on the morning of 12th December.

2. CLEAN WEEDING.—It is surprising how hard the fetish of clean weeding dies. During my recent tour, I saw a gang of about 80 coolies weeding Tea and old Rubber, the latter not even being tapped in December, and busily scraping the soil with Karandies. After careful searching of the area over which they were weeding, I could find no weed over a couple of

inches high, and on most of the land, there were about two small weeds per square yard at the most. Yet Rs. 20 per day at least were being spent which is economically unsound leaving out of account all other questions, for note if you please the rainfall. November, this year, 3·43 inches, last year December nil ; January, 0·64 ; February, 0·35 : March, 0·82 ; conditions likely to be repeated this year and quite normal. Consequently, this small weed crop has to face four months drought, and at the end of that time would all be dead and dried up. Were anyone asked to grow a crop at this time of year, they would realise that it is out of the question. Yet money is being spent to remove this weed, and in the process, valuable top soil is being scraped down the hill sides to the streams to be carried away to sea by the April showers.

Enquiry elicited the fact that "work must be found for the coolies." Granted, but why unprofitable work, and work which is agriculturally unsound and doing a large amount of harm ? It would be better were the coolies paid to sit in their lines. But there is lots of work which needs doing, Mosquito Blight to be caught, Brown Blight leaves to be picked off, the Rubber full of dead wood harbouring *Phytophthora Meadii* ready to attack next year's seed crop and produce secondary leaf-fall. Also I might suggest work like alignment of drains, building up the sides and stepping them where the gradient is steep to catch silt, work which particularly needs attention in the particular place in question. Failing, all this jungle soil might be carried for a top dressing to the Tea.

When the "unpractical scientist" suggests work of this kind, he is usually told that "there is no labour available!"

I have, for years, inveighed against clean weeding, and clean weeding of this nature can have no possible justification, and the system of scraping the soil in this mad desire to have it bare, and "to find work for the coolies" cannot be too strongly condemned. A combination of secondary leaf-fall and clean weeding is killing large areas of Rubber in South India. I know of quite large areas which have stopped growing, and have reached a point when the yield is stationary, if not on the decline, and I warn planters that it is going to steadily decline to its death unless these economically and agriculturally unsound practices are given up. Unless we get back nearer to forest conditions for our Rubber by the intelligent use of weeds and cover crops which we can choose and control, I am firmly convinced that much of our Rubber in this country is doomed.

I see clean weeding going on year after year, and I see the Rubber steadily deteriorating, and the same thing applies to Tea. No amount of manuring will remedy matters where the top soil is lost, nor can the Scientific Department help. 'Tis useless, is it not, to close the stable door, after the horse has been stolen.

3. THE EXPERIMENT STATIONS.—At the Coffee Experiment Station, another week without rain was experienced, and crop is being harvested. The crop from individual trees in Plot 3 was picked and weighed separately. This is the third year in succession that this has been done, and the results are most interesting as showing the distribution of good and bad yielding bushes. Next year, this plot which is worn out, will be collar pruned. In Plot 12, the crop from a number of groups consisting of 100 trees each was picked separately in order to get some figures from which a Probable Error

can be calculated. Samples are being taken from the crop on each plot which will be cured on the Station and examined as to percentage of size, etc., in order to try and follow the effect of manure, etc., on quality. 1,963¼ lbs. of ripe cherry were picked during the week from 3·36 acres. Chop digging was done on ¾ acre, and this work will now be stopped till after crop. The dry spell is causing the Coffee to drop its leaves, but it is noticeable that the plots sprayed with Bordeaux Mixture are retaining their foliage, especially the plot which was sprayed twice. The *Cassia hirsuta* cut over last month is beginning to flower, and probably not much more will be got from it. *Crotolaria semperflorens* is growing well despite the dry conditions.

At the TEA EXPERIMENT STATION, there was no rain during the week, but high wind was experienced which is rapidly checking the flush. 276 lbs. of green leaf were plucked from 2·71 acres, a yield of 101·8 lbs. per acre, as compared with 175·5 lbs. last week. Work of deepening drains was continued, and the green dressing crops continue to show good growth.

At the RUBBER EXPERIMENT STATION, MOOPLY, hot dry weather with no rain at all was experienced. Daily tapping was done, and 131 lbs. of wet sheet and 22 lbs of wet scrap obtained from 1,262 trees, a yield of 0·121 lb. per tree, as compared with 0·135 last week. With the advent of the dry weather and the loss of leaf due to wintering and wind, the crop is failing as is to be expected.

At the RUBBER EXPERIMENT STATION, TENMALAI, there was no rain during the week. Daily tapping was done on 391 trees, and 60·19 lbs. of wet sheet and 7·24 lbs. of wet scrap obtained, a yield of 0·172 lb. per tree, as compared with 0·163 lb. last week. Hot weather conditions have, however, set in, the stream has dried up, and high winds begin to blow. On both Stations, tapping will, probably, have to be stopped early this year as the trees never recovered their foliage after the monsoon attack of Phytophthora and natural wintering aided by the wind, and dry weather will defoliate them early this year.

(Signed) RUDOLPH D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

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UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

Rubber Growers' Association,
South India Branch,
Coimbatore, 6th December, 1921.

CIRCULAR.

To
All Members,
R. G. A. South India Branch.

Sir(s),—With reference to the telegram which I received from the Rubber Growers' Association, and which I have published in this week's *Planters' Chronicle*, I have received the following copy of a further telegram sent by the R. G. A. to the Ceylon Chamber of Commerce :—

> "Council have issued Circular all producers plantation rubber strongly urging continuance voluntary restriction. Producers assenting previous scheme urged undertake not produce more rubber during first six months 1922 than they produced during corresponding period 1921 or alternatively than 75% their output

> during corresponding period 1920. Producers who did not join previous scheme urged undertake during first six months 1922 to restrict their output by 25% of the amount produced during corresponding period 1921 or alternatively 1920. Assents not binding unless members owning or controlling not less than 70% producing area represented by members R. G. A. have similarly agreed by 31st December. Please circulate other Associations and press also South India and obtain assents local R. G. A. members. Please do your utmost to get Ceylon into line. Telegraph result 27th December."

I have already notified the R. G. A. the resolution which was passed at the Annual General Meeting of the Local Branch. At the same time I shall be much obliged if you will kindly let me know whether you are willing to agree to the R. G. A. proposals for restriction next year or not, so that I may be able to advise the R. G. A., definitely, how many acres of Rubber in Southern India are willing or unwilling to do so.

Yours faithfully,
(Signed) C. H. BROCK,
Acting Secretary, R. G. A.,
South India Branch.

SUGAR KEEPS BORDEAUX.

That granulated sugar will keep Bordeaux spray-mixture from deteriorating, is a discovery of the Oregon Station. It is well known by orchardists that Bordeaux becomes almost worthless unless used shortly after being mixed. This trouble can be overcome by adding an eighth ounce of granulated sugar dissolved in water for each pound of copper sulphate. When sugar is used in the proportion mentioned the spray mixture will not spoil on account of break down or delay on account of rain. For a 200 gallon tank of 6 : 6 : 50, bordeaux which will require 24 lbs. of copper sulphate, dissolve 3 ounces (7 heaping tea spoons) in a little water, and add slowly to the tank of spray agitating until thoroughly mixed. Too much sugar must not be added.—(From the American Agriculturist, Vol. 107, No. 24.)

type 3 copies

TEST FOR ADULTERATED BLUE STONE.

Crystals of pure stone are of a deep blue colour. The most useful adulterant is sulphate of iron. The presence of which gives a greenish colour to the crystals, or lightens the colour to a paler tint. If sulphate of iron is suspected it can be easily be identified as follows :—

Powder a few of the crystals, and dissolve the powder in a glass tumbler. After the powder fully dissolves, add a little of ammonia water. The solution will turn a very intense deep blue. Allow this to stand for 15 to 20 minutes, and pour the liquid slowly and carefully. If any sulphate of iron is present there will be a dirty green residue at the bottom of the glass. It will turn red if allowed to stand. Water may be added to remove the deep blue liquid, still remaining, and the glass again allowed to stand for a few minutes when the colour of the iron compound will be more distinct. If it is pure there will be no residue.—(From the Agrl. Gazette of New South Wales, Vol. 32, Part 6.)

HOMEWARD BILLS OF LADING—HAGUE RULES.

Copy of Circular No. C. 84, issued by the Indian Tea Association (London), dated 21st November, 1921.

The Secretary begs to circulate for the information of the General Committee, the subjoined copy of letter from the East Indian Grain and Oilseed Shippers' Association of London, dated the 18th November, together with copy of the letter therein referred to.

The East Indian Grain and Oilseed Shippers'
Association of London,
Exchange Chambers, St. Mary Axe, E. C.
London, 18th November, 1921.

The Secretary,
Indian Tea Association (London),
21, Mincing Lane, E. C.

INDIAN HOMEWARD BILL OF LADING AND THE HAGUE RULES, 1921.

Dear Sir,—As directed by Sir Stephen Demetriadi, K. B. E., I beg to send you herewith a copy of a letter which has been sent to the Chambers of Commerce at Calcutta, Bombay, Karachi and Madras, respectively.

I remain, Dear Sir,
Yours faithfully,
(Signed) G D. Pownall,
Asst. Secretary.

The East Indian Grain and Oilseed Shippers'
Association of London,
Exchange of Chambers, St. Mary Axe,
London, 17th November, 1921.

Dear Sir,—I beg to refer to my letters to you, dated 3rd and 13th October last in which letters I was directed by Sir Stephen Demetriadi, K. B. E. (the Chairman of the Committee appointed by the various Associations interested in the Indian Homeward Trade) to draw your attention to the following :—

(1) The movement at the Hague, which resulted in the drawing up of certain rules called the Hague Rules, 1921.

(2) The desire that you should not relax your efforts to hasten legislation not on the lines of the Hague Rules but on lines following the recommendation of the Imperial Shipping Committee as approved by the Imperial Conference.

(3) The Meeting of the London Chamber of Commerce to discuss the Hague Rules held on the 7th October last and adjourned.

I am now directed to send you a cutting from Lloyd's List of 15th inst. reporting at some length the proceedings of the adjourned meeting of the London Chamber of Commerce, held on the 14th inst. from which it will be seen that an agreed resolution was submitted to the meeting and carried. The resolution before the meeting of the 7th October, accepting the Hague Rules, and Sir Stephen Demetriadi's amendment, not approving of the Hague Rules and asking for legislation, were withdrawn by consent.

In the interval between the Meetings a formula had been found, satisfactory to the opposing interests in the Chamber, which became the agreed resolution moved by Sir Stephen Demetriadi. The lines of the resolution indicate that, whilst some of the provisions of the Hague Rules could not be accepted by certain Associations, including those interested in the Indian Homeward Trade, there are other provisions which could be accepted, and that there was no objection to the rules forming a basis (not the basis) to be taken into account in the settlement when it comes along.

It is important to note that the meeting approved the legislation recommended by the Imperial Shipping Committee and accepted by the Imperial Conference, and agreed to direct the attention of the Governments of the United Kingdom, the Dominions and India to the Hague Rules as containing some provisions suitable for incorporation in that legislation.

Sir Stephen Demetriadi emphasised the fact that it was not a question of the Hague Rules versus legislation, but really one of bringing into harmony two movements which aimed at the same result.

The position, therefore, now reached is that approval has been given by the London Chamber of Commerce to legislation based upon the merging of the best points of the Hague Rules into the best points of the Report of the Imperial Shipping Committee.

I again append a list of the Associations which Sir Stephen Demetriadi represented:—

The East Indian Grain and Oilseed Shippers' Association of London.
The Incorporated Oil Seed Association,
The London Shellac Trade Association.
The London Jute Association.
The London Corn Trade Association.
The Liverpool Cotton Association, Ltd.
The United Kingdom Jute Goods Association, Ltd.
The Indian Tea Association (London), and certain Saltpetre and Rice Interests.

Yours faithfully,

(Signed) G. D. POWNALL,
Assistant Secretary.

The resolution above referred to, which was passed by the London Chamber of Commerce at its Adjourned General Meeting, held on November 14th, 1921, was as follows:—

That this General Meeting of members of the London Chamber of Commerce records its warm appreciation of the work done at the recent Conference of the International Law Association at the Hague by the Maritime Law Committee of the Association, and recognises the Hague Rules 1921 as a basis for the settlement of the respective liabilities and rights of shipowners and merchants under Bills of Lading ;

Invites the attention of the Governments of the United Kingdom, Dominions and India, to them as containing provisions suitable for incorporation in the legislation following upon the recommendations of the Imperial Shipping Committee and the Imperial Conference :

Emphasises the importance of similar legislation by other maritime States, and leaves the use of "Received for Shipment" Bills of Lading to arrangement between the parties concerned.

THE GENEVA CONFERENCE.

Mr. Waddington writes as follows to the Secretary, United Planters' Association of Southern India, Coimbatore :—

LEAGUE OF NATIONS.

INTERNATIONAL LABOUR CONFERENCE

Dear Sir,—As adviser, for Southern India, to the employers' delegate, I attended the third session of the above Conference, which opened at Geneva on the 25th of October, and closed on the 19th of November, and have now returned to England, pending starting for India, from Marseilles on the 3rd December by S. S. "Warwickshire", and forward a preliminary report, which I will supplement after arrival.

The questions discussed at the Conference, which are of interest to Planters, were,—

The adaption of the Washington decisions to agricultural labour regarding :—

(1) Regulation of the hours of work ;

(2) Measures for the prevention of, or providing against unemployment ;

(3) Protection of women and children.

(4) Technical agricultural education.

(5) Living-in conditions of agricultural workers.

(6) Guarantee of the rights of association and combination.

(7) Protection against accident, sickness, invalidity and old age.

The French Government raised the points, firstly, as whether the Conference had jurisdiction to deal with agricultural questions, and secondly that the present time was inopportune for international experiments, such as proposed, and wished the whole matter postponed to a future Conference.

The plea of want of jurisdiction was not pressed, and the French Government confined their demands to the withdrawal of agricultural questions for reasons of expediency only.

The Conference was of opinion that it had jurisdiction, but on the question of retaining on the Agenda, the item dealing with HOURS OF WORK, there voted in favour of retention 63 and against 39, as this was not sufficient to secure the two-thirds majority, necessary. Item 1, above, was deleted, other Items being allowed to remain, and were accordingly discussed.

The Conference has two ways of proceeding, on questions submitted to it. It either passes a "*Convention*," which is held to be accepted by every Member of the League of Nations unless, within a year, it is expressly denounced ; or, it makes a *Recommendation*, which remains such until formally accepted by the States concerned. The Conference made the following *Recommendations* :—

UNEMPLOYMENT.—That each member of the Internationol Labour Organisation should consider measures for the prevention of or providing against unemployment amongst agricultural workers suitable to the economic and agricultural conditions of its country, and that it should examine particularly from this point of view the advisability:—

(1) of adopting modern technical methods to bring into cultivation land which is at present not worked or only partially developed, but which could by means be made to yield an adequate return;
(2) of encouraging the adoption of improved systems of cultivation and the more intensive use of the land;
(3) of providing facilities for settlement on the land:
(4) of taking steps, rendering work of a temporary nature accessible to unemployed agricultural workers by means of transport facilities;
(5) of developing industries and supplementary forms of employment which would provide occupation for agricultural workers who suffer from seasonal unemployment, provided steps be taken to ensure that such work is carried on under equitable conditions;
(6) of taking steps to encourage the creation of agricultural workers' co-operative societies for the working and purchase or renting of land; and of taking steps to this end to increase agricultural associations of land workers established for the purpose of agricultural production.

PROTECTION OF WOMEN AND CHILDREN.—That each member of the International Labour Organisation take measures to ensure to women wage-earners employed in agricultural undertakings protection before and after childbirth similar to that provided by the Draft Convention adopted by the International Labour Conference at Washington for women employed in industry and commerce, and that such measures should include the right to a period of absence from work before and after childbirth, and to a grant of benefit during the said period, provided either out of public funds or by means of a system of insurance.

That each member of the International Labour Organisation take steps to regulate the employment of women wage-earners in agricultural undertakings during the night in such a way as to ensure to them a period of rest compatable with their physical necessities, and consisting of not less than 9 hours, which shall, when possible, be consecutive.

That the members of the International Labour Organisation take steps to regulate the employment of children under the age 14 years in agricultural undertakings during the night in such a way as to ensure to them a period of rest compatable with their physical necessities, and consisting of not less than ten consecutive hours.

That the members of the International Labour Organisation take steps to regulate the employment of young persons between the ages of 14 and 18 years in agricultural undertakings during the night, in such a way as to ensure to them a period of rest compatable with their physical necessities, and consisting of not less than nine consecutive hours.

The Conference passed the following *Convention*:—

Article 1.—Children under the age of fourteen years may not be employed or work in any public or private agricultural undertaking, or in any branch thereof, save outside the hours fixed for school attendance. If they are employed outside the hours of school attendance, the employment shall not be such as to prejudice their attendance at school.

(There are several more articles to this Convention, but until compulsory education is introduced into India the matter is not of importance to Planters.)

The Conference made the following *Recommendations* :—

TECHNICAL AGRICULTURAL EDUCATION.—That each member of International Labour Organisation endeavours to develope vocational agricultural education, and in particular to make such education available to agricultural wage-earners on the same conditions as to other persons engaged in agriculture.

LIVING-IN CONDITIONS.—I. That each member of the International Labour Organisation which has not already done so, take statutory or other measures to regulate the living-in conditions of agricultural workers, taking account of special climatic or other conditions affecting agricultural work in its country, and after consultation with the employers' and workers' organisations concerned, if such organisations exist.

II. That such measures shall apply to all accommodation provided by employers for housing their workers either individually, or in groups, or with their families, whether the accommodation is provided in the houses of such employers or in buildings placed by them at the workers' disposal.

III. That such measures shall contain the following provisions :—

(*a*) Unless climatic conditions render heating superfluous, the accommodation intended for workers' families, groups of workers or individual workers, should contain rooms which can be heated.

(*b*) Accommodation intended for groups of workers shall provide a separate bed for each worker, shall afford facilities for insuring personal cleanliness ; and shall provide for the separation of the sexes. In the case of families, adequate provision shall be made for the children.

(*c*) Stables, cowhouses and open sheds should not be used for sleeping quarters.

RIGHT OF ASSOCIATION AND COMBINATION.—The Conference passed the following *Convention* :—

Article I.—Each member of the International Labour Organisation which ratifies this Convention undertakes to secure to all those engaged in agriculture the same rights of association and combination as to industrial workers, and to repeal any statutory or other provision restricting such rights in the case of those engaged in agriculture.

(There are several more Articles to this Convention not of immediate importance.)

PROTECTION AGAINST ACCIDENT, SICKNESS, INVALIDITY, AND OLD AGE.—The Conference passed the following *Convention* :—

Article I.—Each member of the International Labour Organisation which ratifies this Convention undertakes to extend to all agricultural wage-earners its laws and regulations which provide for the compensation of workers for personal injury by accident arising out of, or in the course of their employment.

(There are several more articles to this Convention not of immediate importance.)

The Conference also made the following *Recommendation* :—

That the General Conference of the International Labour Organisation recommends that each member of the International Labour Organisation extend its laws and regulations establishing systems of insurance against sickness, invalidity, old age, and other similar social risks to agricultural wage-earners, on conditions equivalent to those prevailing in the case of workers in industrial and commercial occupations.

Yours faithfully,

H. WADDINGTON.

ASSESSMENT OF RUBBER PLANTING COMPANIES FOR E. P. D.

THE MERLIMAU DECISION UPHELD. IMPORTANT HEARING.

In the King's Bench Division on Tuesday, before Mr. Justice Sankey, sitting to hear Revenue cases, the case of the Commissioners of Inland Revenue *v.* The Merlimau Rubber Estates, Ltd., was argued.

The Attorney-General (Sir Gordon Hewart, K. C.), and Mr. Reginald Hills were for the Commissioners of Inland Revenue. Mr. Disturnal, K.C., and Mr. A. M. Latter, represented the Merlimau Rubber Estates, Ltd.

The Attorney-General said there were cross appeals from a decision of the Commissioners in the City of London. Upon the first question the Crown were the appellants. On the second question the company were the appellants. The two questions raised points of law in regard to Excess Profits Duty. The levying of Excess Profits Duty involved a comparison between pre-war profits and post-war profits. That comparison was rendered difficult, because in some cases there was no pre-war trading or no pre-war trading on a scale which would yield a fair average.

PRE-WAR TRADING PROFITS.

Therefore, so far as the period before the war was concerned, said counsel, the Act provided two things. First, in a normal case the pre-war standard of profits was to be the average standard of profits in two years selected by the taxpayer out of three years immediately preceding the outbreak of war. In the case of business which had not been carried on before the war a necessary alternative was given of a percentage standard in which it was said: "Ascertain your capital and a percentage on that capital shall be taken to be your pre-war standard."

The normal percentage was 6 per cent. and in other cases the matter was left to the decision of a Board of expert referees. More than that, it was provided by the Act that in a case where there had been pre-war trading, so that it was quite possible to ascertain the pre-war standard of profit in the normal manner, the taxpayer might have the benefit of the percentage standard, the percentage calculated on his capital if the result would be more advantageous to him. It was obvious, as far as the taxpayer was concerned, he was desirous, if the calculation proceeded on the percentage standard on his capital, of making out of his capital to be as large as possible. The larger his capital the larger the sum yielded by the percentage would be, and the larger would be the pre-war standard with which his post-war profit had to be compared. What had happened in this case, to put it in the most general terms, was this: Here was a Rubber Company and that company had plantations. Some of those plantations were matured and some were not matured. It took a rubber tree something like five or six years to begin to yield, and, therefore, their expenditure was partly on matured plantations (producing areas) and partly on immature plantations (non-producing areas). The question had arisen, not merely in this case, as to the nature of that expenditure where the rubber company was spending money on non-producing areas—that was on plantations which yielded no rubber now, but were expected to yield rubber in the future—what was for the purpose of this taxation the true nature of that expenditure.

ECHO OF THE VALLAMBROSA CASE.

The question arose in the Vallambrosa case before the war on the question of income tax and the materiality of that case, continued counsel, was that for the purpose of Excess Profits Duty profits had to be calculated in the same way as they were calculated for the purpose of income tax, subject to certain modifications. In that case it was held that the money which the company spent upon its non-producing areas was expenditure chargeable against revenue; in other words, it was a sum which could be deducted before the company set out the profits on which income tax was to be levied, which was in the same category as money paid for wages, goods, or any other expense in the conduct of the business. It was an expense to be set off against the revenue of the year. It was revenue expenditure as distinguished from capital expenditure, and, for the purpose of income tax, the yield, if any, would arise when that on which the money was spent became productive. But for the moment the money was gone; it was an expense incurred. Expenditure of this character, therefore, had been held to be for the purpose of income tax revenue expenditure, and in this very case the company had followed that course. For the purpose of income tax they had treated this expenditure on their immature plantations as revenue expenditure. They had diminished by so much that upon which they were to pay income tax. More than that, for the purpose of calculating their profits for Excess Profits Duty they had observed the same course, that was to say, inasmuch as the profits for Excess Profits Duty were the same as profits for the purpose of income tax, in like manner they had treated these payments as payments which were to diminish the sum of their profits. Now came the change. When the question was what was the capital on which the percentage was to be calculated for the purpose of arriving at the percentage standard of pre-war profit they said: "Oh, but this is capital expenditure. This is an addition to capital." So they were to have the advantage in the most agreeable manner both ways. They were to have the benefit of the expenditure as revenue expenditure for the purpose of income tax and Excess Profits Duty calculation of the profits, but when it came to doing the sum and making a contrast between pre-war and post-war, they said this was capital outlay, and they claimed to have the percentage standard calculated upon these sums as if they were an addition to their capital.

QUESTION OF REVENUE EXPENDITURE.

Counsel, continuing, submitted they could not have it both ways. He was prepared to assume that the decision in the Vallambrosa case was right. It was not appealed against and it stood. Assuming that decision to be right, then one must go on to say this was revenue expenditure and must be so treated not for one half of the calculation, but for both halves of the calculation, and they must not afterwards be told it was really capital expenditure. Or, putting it the otherway round, if, indeed, it is really fairly to be regarded as capital expenditure as forming part of the capital assets of the company, if it was not to be treated in the way it was treated in the Vallambrosa case, in this case, where the question was what were the profits, it could not be revenue expenditure for the one purpose and capital assets for the other. On the first question raised the burden was on him. It was this: Whether expenditure by the company on the immature or non-producing areas of these plantations, which was admittedly revenue expenditure deductible in arriving at profits under the Vallambrosa decision, and which had, in fact, been deducted by the company in arriving at profits for Excess Profits Duty purposes, could be treated by the company as a capital asset for the purpose of the ascertainment of capital in the same manner as that in which capital expenditure was treated.

The other question which he was not going to open, because the burden was on the other side, was, continued counsel, quite a short question, namely, What was the true mode in which the repayment of the relief granted by Section 38 of the Finance Act (No. 2), 915, where in certain circumstances certain amounts paid by the taxpayer for Excess Profits Duty were repaid to him, was to be calculated? That also depended on Section 45 of the Finance Act, 1916. The difficulty arose only because the rate of Excess Profits Duty was not constant throughout the whole period. The question was, What was the true basis on which repayment to the taxpayer was to be calculated? The Vallambrosa case, which was the starting point of the controversy, was reported in 1910 Sessions cases.

THE COMMISSIONERS' CASE.

The case stated by the Commissioners for the general purposes of the Income Tax Acts for the City of London, under the provisions of Section 45, Sub-Section 5, of the Finance (No. 2) Act, 1915, and Section 149 of the Income Tax Act, for the opinion of the King's Bench Division, set out that at meetings of the Commissioners for the general purposes of the Income Tax Acts in May and July, 1918, the Merlimau Rubber Estates, of Winchester House, Old Board Street, E. C., appealed against assessments made on them to Excess Profit Duty under the provisions of the Finance (No. 2) Act, 1915, Part 3, as follows:—Accounting period, January 1st to December 31st, 1914; net amount of excess profits, £25,000; rate, 50 per cent; duty payable, £12,750. Accounting period, January 1st to December 31st, 1915, net amount of excess profits, £70,184; rate, 60 per cent.; duty payable, £42,110. Two points only were argued before them and arose for the opinion of the High Court: (a) As to the correct method of calculating the capital of the company for the purpose of arriving at the percentage standard of the company; (b) Giving effect to the provisions under Section 38 (3) of the Finance (No. 2) Act, 1915, and Section 45, Sub-Section 2, of the Finance Act, 1916, for set off in respect of periods wherein there was a deficiency from standard.

The facts relating to the two questions, said counsel, appeared in two parts of the case headed respectively "A" and "B."

"A"—The company was incorporated on September 18th, 1909, with a capital of £210,000 divided into 2,100,000 shares of 2s. each. The company on its formation acquired from its vendors about 6,145 acres of land, the purchase consideration payable being £115,000. The said land as to 5,663 acres consisted of land planted with immature rubber trees not in bearing, and, as to 482 acres of land not planted with rubber trees. In general, six years elapsed between the time when an area was planted with trees by the company and the time when the trees came into bearing. No part of the area already planted produced revenue from rubber at the time of its acquisition by the company. The company from the time of its formation to December 31st, 1913—being the date of the end of the last pre-war trade year—had expended money in clearing the land, reclaiming, planting weeding, pruning and digging the unplanted and immature areas.

THE PERCENTAGE STANDARD.

The company made an outlay of £89,603 on this expenditure, which had always been treated as capital expenditure by the company in its own accounts. Particulars of such expenditure of the company, so treated as capital expenditure from its inception to the end of the last pre-war trade year. were shown in a statement attached to the case. The percentage standard and not the profits standard was taken to be the pre-war standard of the company under the provisions of Section 40 (2) of the Finance Act, 1915. The said expenditure, although charged to capital in the company's accounts, was allowed as a deduction in arriving at profits for the purpose of income tax assessments and in arriving at profits for the purpose of Excess Profits Duty, as it arose in the respective years and for the purposes of the company's claim for relief with respect of the first accounting period under Rule 7 of Part I., Schedule 4, of the Finance Act, 1915.

The only question on which the decision of the Commissioners was asked was as to the method of calculation of the capital of the company as at December 31st, 1913, being the last pre-war trade year, for the purpose of arriving at the percentage standard of the company for Excess Profits Duty.

The company contended that for the purpose of ascertaining its capital that one of two alternative methods should be adopted. The first alternative was to take a valuation of the fair market value of the estate at December 31st, 1913. In support of this contention the company adduced evidence that the fair market value of the estate on that basis was £400,000. The second alternative was that the whole of the capital expenditure, including expenditure for development, should be added to the cost price of its assets acquired by purchase and treated as its statutory capital, and accordingly that the capital of the company should be £244,110.

EXPENDITURE ON DEVELOPMENT.

It was contended, on behalf of the Commissioners, that for ascertaining the capital of the company there should not be added to the value of its assets the sum expended by the company, £89,603, for development, both on the ground that the assets must be taken at the price at which they were acquired in accordance with Rule I of Part 3 of Schedule 4 of the Finance Act, 1915, and on the ground that such sum of £89,000 was expenditure which had been allowed as a deduction in arriving at profits for the purposes of income tax assessment, and the appropriate part of which had, been deducted in arriving at profits for the purposes of Excess Profits Duty and accordingly that the capital of the company should be £154,506.

The Commissioners held that in the ascertainment of the capital of the company they were bound by the provisions of Part 3 of the fourth Schedule to the Finance Act (No. 2), 1915.

(2) That a rubber estate, being a constantly varying asset, the mature and immature areas had an added capital value, apart from the purchase price on December 31st, 1913, that can be ascertained in accordance with the provisions of that schedule.

(3) That, in ascertaining the capital of the company on December 31st, 1913, the market value of the assets cannot be taken into account.

(4) That, in the agreed statement of figures the method of ascertaining the capital put forward by the company is fair and reasonable and should be adopted.

The Commissioners accordingly found that, for the purpose of the Excess Profits Duty the capital of the company at the end of the last pre-war trade year was £244,110. The second part of the special case headed "B" did not arise at that stage.

The Attorney-General, continuing, said in making up their accounts the company charged to the profit and loss account the annual expenditure on producing areas. They had charged to capital expenditure the expenditure on non-producing areas, but when they came to arriving at their income tax liability they deducted from the profits shown in their profit and loss account what had been expended on the non-producing areas and debited the capital. As between themselves and their shareholders they were saying their asset had been increased in value by these sums, but for the purpose of arriving at the income tax liability they deducted these sums. The company was served with notices to make a return of its profits for the accounting periods ending December 31st, 1914, and December 31st, 1915. They made no return, and therefore on the materials which the Commissioners had in their hands estimated assessments were made, and those were the subjects of the case.

AN UNDISPUTED POINT.

There was no dispute that the company was entitled to a percentage standard of pre-war profits under Section 40. In dealing with these expenses, which he would for convenience sake call Vallambrosa expenses, the only possible modification that by any ingenuity it could be suggested applied was Rule 3 in Part 1 of Schedule 4, but such a suggestion would involve a complete fallacy. The question there was the computation of profits. Rule 3 provided that deductions for wear and tear or for any expenditure of a capital nature for renewals or for the development of the trade or business or otherwise in respect of the trade or business shall not be allowed except such as may be allowed under the Income Tax Acts, and, if allowed, shall be only of such amount as appears to the Commissioners to be reasonably and properly attributable to the year or accounting period. In the submission that really would not be applicable here so as to permit of deduction of these expenses or any part of them. That really was intended to restrict excessive deductions by the taxpayer. It was never intended to prevent in a proper case a diminution of the profits by the Crown, and, secondly, the words only applied to expenditure of a capital nature, whereas the expenditure in question, according to the Vallambrosa decision in the computations for income tax and for Excess Profits Duty, was expenditure of a revenue character.

His lordship: Supposing you are wrong, is it possible for you to get any more income tax from these people?

The Attorney-General replied he was told that could not be done, because they were out of time. On the other hand, there would be some possibility of readjustment in this sense so far as Excess Profits Duty was concerned; it would not be too late to prevent the company from taking the benefit of this expenditure in both senses. They could not use it for the purpose of diminishing their profits, on the one hand, and of inflating their capital on the other.

THE PROBLEM FOR SOLUTION.

Mr. Disturnal said the Attorney-General had stated that the Vallambrosa decision was the starting point with reference to this case. He (Mr. Disturnal) said that decision had nothing at all to do with this case. The Vallambrosa decision related to the problem of ascertaining the statutory income which was liable to income tax, and his lordship was not in any way concerned with that matter. The only thing he was concerned with was to see wheth the Commissioners were right in the method they had adopted in ascertaining the statutory capital at a particular time which was to enter into the calculation for the purposes of Excess Profits Duty. The beginning and ending of the matter was to see what the Statute said regarding it. When they saw the effect of the Statute they found that the Vallambrosa decision had really nothing to do with the matter. If they looked at the case they would see that the real point argued was as to the correct method of calculating the capital of the company for the purpose of arriving at the percentage standerd of the company. The rules for that were obviously contained in the Statute, and, when his lordship had interpreted the Statute properly, it then became necessary to find the facts of the particular case. In that way by applying the Statute properly construed to the facts of the particular case they could ascertain what was the capital, which was the problem to be solved. It was admitted here that the pre-war standard of profits was the percentage standard. Sub-section 2 of Section 40 said, " The percentage standard shall for the purpose of this part of the Act be taken to be an amount equal to the statutory percentage on the capital of the trade or business as existing at the end of the last pre-war trading year." Therefore the only thing to be ascertained was what was the capital of the company at the end of the last pre-war trading year, which in this case was December 31st, 1913. That had nothing to do with income or with anything else, but the value of the capital or the assets of the business which were capital within the meaning of the Statute. They had to look at Part 3 of Schedule 4 for the purpose of seeing how the capital of the business had to be calculated. That said that the capital of the company should be taken to include assets acquired by purchase, debts due and the value of the other assets at the time when they became the assets of the business, subject to any proper deductions for wear and tear or replacement. The words which followed were rather significant, having regard to the Attorney-General's argument, "and nothing in this part of this schedule shall prevent accumulated profits employed in the business being treated as capital." That was also followed in the Finance Act of 1916. These sums which had been accumulated really arose and existed before the end of 1313.

Basis of Percentage Standard.

Therefore the Act for the purpose of establishing the capital, which was to be the basis of the percentage standard, took out and regarded matters which had been dealt with in the revenue account as being capable of being turned into capital which was to form the basis of the percentage standard. The Commissioners had held that a rubber estate, being a constantly varying asset, the mature and immature assets had an added capital value apart from the purchase price on December 31st, 1913, that could be ascertained in accordance with the provisions of the fourth schedule. If the expenditure was prudently carried out, obviously the capital value of the estates was increased. The Crown said that none of the development expenditure should be allowed. The company said the whole of it should be allowed. If, in fact, it was not proper expenditure, then it was not capital. But the Commissioners, having heard the evidence, found that the expenditure was fair and reasonable. The Crown did not say it was unfair and unreasonable expenditure.

His lordship: Do you say it is a question of fact ?

Mr. Disturnal submitted that it ultimately came to that. It was the duty of the Commissioners applying these rules for the purpose of ascertaining the value on December 31st, 1913, to see whether that was the accurate value, and they said most directly that it was, and that it was fair and reasonable. There was a fallacy at the bottom of the argument for the Crown. In arriving at the value of the capital on a particular date it did not matter to the Crown whether the money was actually subscribed or whether it was money earned in trading. The Act recognised that, because it said, "if you had accumulated profits year after year before the end of the last pre-war trading year and had got in hand, in addition to the capital subscribed, money which had come through the revenue account and resulted in profits that was to be added and become part of the capital for the purpose of the company's business."

" THE ONLY QUESTION."

For the purpose of solving the problem, said Mr. Disturnal, neither the Commissioners nor the court were concerned with the revenue of the pre-war years, or with how it was earned. These sums had been spent on the concern so as to increase its value at the end of each year, and the Commissioners said the fair way was to value it as the company had done. It was no business of theirs to ascertain where the money had come from. The only question was what was the value on December 31st, 1913 ? The Crown did not say it was unfair, but they were driven to say that, though the money had been admittedly spent on the property, it had not increased its value. However cleverly their argument might be wrapped up, that was the effect of their contention and it was quite contrary to the effect of the Statute. That really was the whole case, and the Vallambrosa case applied to the solution of quite a different problem. The question of the amount of capital was always a question of fact, and, therefore, he submitted the appeal of the Crown ought to be dismissed.

With regard to the cross-appeal, he had carefully considered that and did not think he ought to proceed with it.

Mr. Reginald Hills replied for the Crown.

THE JUDGMENT.

His lordship, in giving judgment, said there was only one point left, and it sounded one of the greatest simplicity, namely, What was the correct method of calculating the capital of the Merlimau Rubber Estates, Ltd., for the purpose of arriving at the percentage standard of the company for Excess Profits Duty ? Although the question was a simple one, the answer was not easy to give and was one on which persons might well differ. The same person might well at one point of the argument think one answer was correct and at another moment of the argument think the opposite answer was correct. The Commissioners had found that the proper capital of the company for the last pre-war trade year was £244,110. The Crown, on the other hand, said that the proper amount of the capital ought to be £154,506. He did not say it in any offensive sense, but the higher the company could make the capital the better for them, because it would make their percentage of pre-war profits larger, and they were perfectly entitled to make the capital as high as possible. The company had from its formation down to December 31st, 1913, expended monies in clearing, reclaiming, planting, weeding, pruning and digging the unplanted and immature areas, and, as the case found, had always treated these monies as capital expenditure. Having regard to the Commissioners' findings, he had to see whether the company's method of ascertaining the capital was fair and reasonable and should be adopted. It was there he got to the dispute between the Crown and the company. The difference between them was this : The Crown said the company had spent money on the development of these non-producing areas, and that all along the company had been entitled for the purpose of income tax to detect that money from their revenue account quite rightly by reason of the well-known Vallambrosa case, which was a case about a rubber company with the same facts as this as to the trees not producing revenue for six years. The Crown said now that the company had had the advantage of these deductions from revenue; they were revenue expenditure, and the company could not have it both ways. They could not, for the purpose of arriving at income tax, deduct these sums, and then for the purposes of ascertaining what their capital was within the meaning of the Excess Profits Duty take them into account for the purposes of capital. It was not put by the Crown on the ground of estoppel ; but Mr. Hills said the object of the Act was to compare like with like. "If you were going to do that, if you were going to compare a figure arrived at on a number of figures before December 31st, 1913, with a figure which you arrived at subsequently you could not use the same figure both to decrease the amount which you paid for income tax and to increase the amount which you wish to assess your capital. If it is revenue, you are right on income tax, and wrong on capital."

ASCERTAINING THE CAPITAL.

There was very great force in that contention, continued his lordship, but the difficulty he felt about it was this, that these Acts of Parliament did not create actual capital and actual profits, but they seemed to him to create statutory profits, and statutory capital, and he could conceive it to be quite possible—he did not say it was so in this case—that they might have two Acts of Parliament and that under one they could deduct a sum for the purpose of arriving at their income and under another different Act they could add the same sum for the purpose of ascertaining their capital. He did not say that was the case here, but it was not beyond the bounds of possibility, just as in rating cases they had to do certain things to ascertain what a hypothetical tenant would give. He agreed that what they had to do here was to ascertain the capital according to the provisions of the 1915 Act, and by Schedule 4, Part 3, it was provided that the amount of the capital of a trade or business shall, so far as it does not consist of money, be taken to be :—

(a) So far as it consists of assets acquired by purchase the price at which those assets were acquired, subject to any proper deductions for wear and tear and replacement, or for unpaid purchase money ; (b) so far as it consists of assets being debts due to the trade or business, subject to any reduction which has been allowed in respect of those debts for income tax purposes ; and (c) so far as it consists of any other assts which have not been acquired by purchase, the value of the assets at the time when they became the assets of the trade or business, subject to any proper deductions for wear and tear or replacement.

Nothing in this part of the Schedule shall prevent accumulated profits employed in the trade or business being treated as capital.

Paragraph (a) applied to the £115,000 which the company paid for acquiring this property on its formation. He turned to the figures which the Commissioners had upheld. They said that in the agreed statement of figures the method of ascertaining the capital put forward by the company was fair and reasonable and should be adopted. The way they had done it was this : In the balance-sheet and profit and loss account for 1910 they put down the cost of the estates at £115,000 and added £24,000 for development. Next year, 1911, the cost of the estate was put down at that figure £139,000. Other sums were put down for maintenance, making the cost of estate at the end of December, 1911, £179,000. That method was pursued each year and by it the figure of £244,000 was arrived at by the end of 1913,

A QUESTION OF FACT.

The Crown said that large sums ought to come off that figure, because it included sums for maintenance and development which the company had already had the advantage of as deductions from revenue. Although he was impressed by Mr. Hills' contention that they must compare like with like, all he had to see was whether the Commissioners had misdirected themselves in coming to the conclusion that £244,000 was the capital of the company on December 31st, 1913, for the purpose of duty. Unless he could clearly see that they had misdirected themselves, he thought it was a question of fact for the Commissioners. He came to the conclusion that, unless there was some glaring instance of misdirection, it was impossible for the court to interfere. After all, although certain rules were laid down in the Act with regard to the method in which the capital was to be ascertained, what was the capital was to a large extent a question of fact, and in a case cited by Mr. Disturnal all that Mr. Justice Warrington held was that a company was bound to conduct its business fairly. In ascertaining the capital of the company for the purpose of this Act he did not think any other principle ought to be applied.

THE CROWN APPEAL DISMISSED.

The company was bound to conduct its business fairly, and make up its accounts fairly, and there was a finding of fact that what they had done and the method they had followed of ascertaining the capital was fair and reasonable. He could see nothing in the Act of Parliament, especially in Schedule 4, Part 3, which compelled them to follow the course suggested by the Crown. It seemed to him the only reason Mr. Hills advanced for the Commissioners being wrong was that the company had the benefit of deducting these sums for the purpose of arriving at their income tax and, moreover, had the benefit of them in arriving at capital value for Excess Profits Duty. But he (the judge) had pointed out that it might well be that where they had to ascertain statutory income and statutory capital under different Acts they were entitled to use the same sum both ways. There was nothing in the Finance Act, 1915, which prevented them using it for the purpose of ascertaining what was the capital. The illustrations which had been put by counsel led him to this conclusion, that these questions were really questions of fact and each case had to be considered on its own facts and merits. When he had it found there that the method of ascertaining the capital of the company was a fair and reasonable one, when they found as he had found, that there was nothing against it in the Act of Parliament, he thought he must adhere to the decision of the Commissioners. The only real argument against it was that the company had used th sums in another way. It not being a case of estoppel and it being found to be reasonable and in no way transgressing the provisions of the Act as to the method of ascertaining the capital, he was unable to say the decision of the Commissioners was wrong. The appeal must be dismissed, but there would be no costs on either side as the company had given up their cross appeal.

The Crown's appeal was dismissed accordingly.

The Planters' Chronicle.

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Edwin Vincent, Managing Editor, Coimbatore.

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PRICE OF "A" COFFEE

(BY CABLE.)

London, 16th December, 1921.

129s,/- per cwt. Market Firm.

The Madras Agricultural Students' Union

It has been our custom ever since the transfer of U. P. A. S. I. Headquarters to Coimbatore, to comment yearly in these pages on the Conference and College Day of the Madras Agricultural College and Research Institute, which takes place annually at Coimbatore in December. This year the programme commenced on Monday with the usual sports, and on Tuesday the Conference proper was opened by Mr. MacMichael, I.C.S. in the spacious College Hall. Mr. Anstead has commenced a series in these pages designed to make planters a little more acquainted with the Madras Agricultural Department, about which apparently very little is known in the planting world, but to which constant resort is made by the community. We do not, therefore, propose to say anything about the College itself, that would be to anticipate the information which no doubt will be duly forthcoming from the Deputy Director of Agriculture, Planting Districts, but we would like to say a few words concerning the Conference, in the hope that our oft expressed wish that planters would attend it will eventually be gratified, if constantly reiterated.

In the annual report of the working Committee of the Union, mention is made of the proposal to affiliate the Agricultural College to the Madras

University, and the announcement was made at the Conference by Mr. R. C. Wood, the Principal, that a committee of inspection has been appointed, and will be visiting the College. In the event of a favourable result of this inspection, it means that, when in due course the College is affiliated to the University, the students who succeed in their College course will be able to write after their names the magic letters B. Sc., in agriculture. Mr. Wood very rightly and pointedly remarked that, under these conditions, the greater and the more worth winning the prize, the harder must be the struggle to obtain it, and if the successful ones obtain a superior title there will doubtless be less of them to obtain it.

Two years ago, when the Conference was presided over by the Hon'ble Mr. M. E. Couchman, I. C. S., he expressed the wish that a larger number of the members of the Union should themselves contribute papers. As a result, last year, only one of the European Officers, Mr. G. R. Hilson contributed a paper (1). The remaining addresses were by present and past students and the Indian Officers. They reached a high standard, and were most instructive and interesting. This year a similar policy has been followed, and apart from a paper by Mrs. Norris (2), the Government Agricultural Bacteriologist, the whole of the papers were by members of the Union. We were unable to hear them all, but we have been permitted to see them, and, if our advice were asked we would say that the students and other members of the Union would be well advised to stick to their lasts, and avoid papers dealing with anything of a controversial nature other than in agriculture. They should realise that these conferences are attended largely by people who are themselves landholders : agriculturists, in fact, in the fullest sense of the term, and what the audience wants is some insight into what return is being obtained for the admittedly liberal outlay of money on their education. This can best be demonstrated by papers showing results, wherever possible, of the experiments carried out in the endeavour to improve yields per acre in this country. That is the essence of the College's existence ; its *raison d'etre*. We do not know if it has a motto, but it might well be that of the United Planters' Association of Southern India " E TERRA IN TERRAS," if we may interpret that as meaning that we gather the fruits of the earth and distribute them over the world.

To say that there is a great future before them is perhaps a platitude, and it is interesting to note that the students through their Union recognize how very generous the Government have been in providing funds to make sure of that future. As the report says, no better evidence is needed than the construction, now in progress, of a separate building to house the Teaching section, and thus meet the evergrowing demand for accommodation. Government admittedly have shown further liberality in increasing the percentage of Indians in the superior grades, no less than six of them having been promoted to the Imperial Agricultural service, and four others have attained Gazetted rank. Obviously, then, if this process develops as presumably it will develop, the future of the Institute is in the hands of the Indian Officers of the Department. Let us hope they will not let rust this splendid weapon which has been forged for them by their predecessors, wherewith to make certain the agricultural advancement of the whole of India in general and the Madras Presidency in particular.

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(1) Cumbodia Cotton, its deterioration and Improvement, P. C. Vol. XV, Page 893 *et seq.*

(2) Reproduced in this issue.

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT No. 29.

The Deputy Director of Agriculture, Planting Districts, reached Coimbatore on the morning of 12th, and he was at headquarters during the week.

2. DRAINS.—It appears to me that drainage systems do not receive as much attention as they should on estates as a whole. A very useful little book on the subject of drains which I can recommend to planters is "Drainage for Plantations, a Practical Hand Book," by Claud Bald, published by Thacker Spink & Co.

An aspect of drainage often lost sight of is its effect upon diseases. I notice that Mr. Carpenter in his address at the Annual Meeting of the Assam Branch of the Indian Tea Association (published in last week's Chronicle) speaking of Mosquito Blight, says, "it is increasingly evident that good drainage is one of the chief necessities for every type of soil." Both on Rubber and Tea estates, more careful attention to the drainage system, and a deepening of the existing drains would often, I feel sure, have a beneficial effect upon the diseases present.

Not only this, but drains where they do exist should be more carefully made. On my recent tour in several places, I saw instances of cross drains entering a main drain opposite one another, with the result that at the junction gullying took place. Main drains should be walled up and stepped, and provided with catch pits for silt. Stone for the purpose is, as a rule, plentiful. It is a common thing to see young clearings with the main drains out straight down hill, and no precautions taken to prevent them forming gullies, with consequent loss of soil and plants. This is work that might be done in off times to " find something for the coolies to do," and the labour would be more profitably employed at this work than at clean weeding and scraping the top soil down into the streams.

A system of contour drains, properly made and looked after, will go far to prevent soil erosion which is so common on our estates, and which does so much harm.

When these drains are cleaned out the soil taken from them should be put on the *top side* of the drain and spread out for several yards. In this way, a terrace can be made above the drain. The usual practice is to pitch the soil on the lower side and help it on its way down hill to the paddy fields, and this habit rapidly forms steep banks on steep land, which increase the soil erosion. If the soil is placed *above* the drain, a terrace can be formed in such a way that surface water coming down the hill reaches the drain flowing *up-hill* at the edge of the drain. It deposits its silt in the trough of the terrace, and helps to build it up, and clear water only runs into the drain. If the upper side of the drain has a hedge of a cover crop planted along it, this terrace building process is aided to the benefit of the crop.

3. THE EXPERIMENT STATIONS. — At the Coffee Experiment Station, hot dry weather was experienced, and crop is being harvested. 2,054¼ lbs. of cherry were picked during the week from about six acres. A sample bushel is being taken from each plot and retained for drying and curing on the Station. Seed beds are being prepared; for a nursery for next season's supplies.

At the Tea Experiment Station fine bright weather without rain was experienced. 505 lbs. of green leaf were plucked from 3·34 acres, a yield of 151 lbs. per acre as compared with 102 lbs. last week. An attempt is being made to drain the swamp on the Station by deepening and re-grading the drain from it. It is proposed to grow green dressings on this swamp, and

Dadap has already been planted, but it is, at present, suffering from water-logging

At the Rubber Experiment Station, Mooply, hot weather conditions without rain prevailed during the week. Daily tapping was done, and a crop of 123 lbs. of wet sheet and 22 lbs. of wet scrap obtained from 1,262 trees, a yield of 0'115 lb. per tree, as compared with 0'121 lb last week.

AT the Rubber Experiment Station, Tenmalai, there was no rain during the week, and a strong east wind was blowing. Dead wood is being removed from the trees and burned. Daily tapping was done on 391 trees, and a crop of 57'25 lbs. of wet sheet and 6'84 lbs of wet scrap obtained, a yield of 0'164 lb. per tree as compared with 0'172 lbs. last week.

(Signed) RUDOLPH D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

17–XII–21

THE U. P. A. S. I.

Proceedings of an Extraordinary General Meeting of the United Planters' Association of Southern India, held at the Office of the Association at Coimbatore, on Monday the 19th day of December, 1921, at 9-30 A. M.

PRESENT :—

Mr. W. H. Clare	...	Representing	Wynaad and C. Travancore Planters' Associations.
Mr. S. O'M. Deane	...	Do.	N. Mysore & Bababudin P. A.
Mr. Eric Stanes	...	Do.	Kanan Devan & West Coast P. A.
Mr. P. E. Perry	...	Do.	Nilgiri & Nilgiri-Wynaad P. A.
Mr. W. J. Campbell	...	Do.	Shevaroy & South Mysore P. A.
Mr. Edwin Vincent	...	Do.	Mundakayam & S. Travancore P. A.
Major C. H. Brock	...	Do.	Anamallai & Coorg P. A.
Mr. W. J. Campbell	...	Do.	Anupura Coffee Works, Ltd.
Major C. H. Brock	...	Do.	Messrs. Bayly and Brock, Ltd.
Mr. W. J. Campbell	...	Do.	,, Peirce, Leslie & Co., Ltd.
Mr. Eric Stanes	...	Do.	,, T. Stanes & Co., Ltd.
Mr. Eric Stanes	...	Do.	The United Coffee Supply Co. Ld.
Major C. H. Brock, O.B.E., V. D			*Acting Secretary.*

Mr. S. O'M. Deane was voted to the Chair.

1. Read notice calling the Meeting.

2. The proceedings of the Extraordinary General Meeting, held on 28th November, 1921, were taken as read, and confirmed.

3. The following Special Resolution, which was passed at the last meeting, was put from the Chair for confirmation, and was carried unanimously :—

"With reference to Article 7 in the Articles of Association, that instead of the dates 30th day of June, 30th day of September, 31st Day of December and 31st day of March, the following be substituted :—

1st April, 1st July, 1st October and 1st January."

The proceedings terminated with a vote of thanks to the Chair.

(Signed) C. H. BROCK,
Acting Secretary.

(Signed) S. O'M. DEANE,
Chairman.

ANAMALLAI PLANTERS' ASSOCIATION.

MINUTES OF AN EXTRAORDINARY GENERAL MEETING OF THE ANAMALLAI PLANTERS' ASSOCIATION, HELD AT THE ANAMALLAI CLUB, ON WEDNESDAY, THE 14TH DECEMBER, 1921, AT 11-0 A.M.

PRESENT.—Messrs J. Hatton Robinson, (Chairman), C. W. R. Tyler, J. H. Ireland-Jones, D. Cooper, C. L. Napier, W. V. Reilly, E. H. Francis. E. Johnson, E. N. House, S. Sladden, J. E. Carless, I. Stewart, E. W. Simcock, P. Curwen and J. E. Sampson, (Honorary Secretary).

By proxy.—Mr. A. W. F, Mills.

Before commencing the Agenda for the day, the Chairman spoke as follows, all Members standing :—

"Gentlemen,—Before proceeding with our business to-day, I am sure you would like to record the great loss that this Association has sustained in the untimely death of one of its oldest members—Mr. J. Harding Pascoe, of Woodlands Estate, Nilgiris.

"Mr. Pascoe, although a Nilgiri Planter, had been intimate with these hills for quite a number of years, and, since he joined the firm of Barber and Pascoe, had always taken a deep interest in the development of the District. Those who had the pleasure of Mr. Pascoe's friendship, knew him to be a true friend, a sound planter, and a keen sportsman.

"I know it is your wish that we ask our Honorary Secretary to convey to Mrs. Pascoe, and to Sir Fairless Barber, the sincere sympathy of the Members of this Association in their sad loss.

"This Association also wishes to place on record its regret on recently hearing of the death of Mr. J. D. Brewer, who, for some time, was a Member of this Association."

MINUTES.—The minutes of the following Meetings were taken as read, and confirmed :—

1. The Extraordinary General Meeting, held on the 4th October, 1921, and
2. Special Meeting of the General Committee, held on the 26th October, 1921.

The Minutes of the Meeting of the Transport Committee, held on the 26th October, 1921, were read, and confirmed.

ELECTION TO GENERAL COMMITTEE.—As a result of the recent departure for Home of Mr. C. R. T. Congreve, proposed from the Chair, and seconded by Mr. D. Cooper, that Mr. E. N. House be elected a member of the General Committee. Passed unanimously.

DISTRICT BOARD.—Read letter, dated the 9th November, 1921, from the Planting Member of Council, and letter No. 4815, dated the 19th November, 1921, from the Secretary, U. P. A. S. I.

The Chairman mentioned that Mr. Simcock and he had interviewed Mr. Gopalasawmy Iyengar in Coimbatore, on the 28th November, and that it appeared that Government were now in favour of giving considerably more assistance in this matter than had been thought probable in the past. The Chairman read the figures given by Mr. Gopalasawmy Iyengar, and mentioned that that gentleman had stated that no District Board would receive preferential treatment from Government.

Mr. Simcock mentioned education, which had been omitted from the estimate of annual expenditure, and which it is probable that Government would insist upon.

It was decided that the matter be thoroughly gone into by the General Committee, and a report made at a convenient date.

ROADS:—Anamallai Ghaut Road.—Read letter from the Secretary to Government, Madras, No. 965 Wks. B. 4, dated the 1st November, 1921.

The Chairman referred to the difficulties with which the proposed Transport Scheme was faced, unless definite and lasting improvements could be made to the road. It was noted that a Meeting of the Road Board was to have been held in Madras, on the 12th December, at which either the Chairman or Secretary of the U. P. A. S. I. would attend, and at which this road would receive attention. It was decided to leave the matter until receipt of the report of this meeting.

The Honorary Secretary was directed to write to the Executive Engineer, P. W. D., Coimbatore, in connection with the bridges on the Stanmore—Club Road, suggesting widening of same and improvements to the approaches.

Stanmore—Kaliyanapandal Road:—Read letter from Mr. I. Stewart, dated the 11th November, 1921. Considerable discussion took place, and reference was made to the agreement signed by the Association, in connection with the upkeep of this road. It was decided to ask for assistance in respect of the bridges only, and to enquire why same had been allowed to remain so long in their present condition.

Nelliampathies District Road:—Read letter from Mr. A. Hall, dated the 23rd October, 1921. The Honorary Secretary was directed to ask for more details, and to suggest that other Managers in the Nelliampathies give their views on the matter.

CLUB—Post Office Road.—Read letter from Mr. A. C. Cotton, dated the 16th November, 1921. After considerable discussion, a resolution on this matter was withdrawn, the meeting not being in favour of utilising Association funds on such work.

TITLE DEEDS, WITH SPECIAL REFERENCE TO QUARRIES:—Read letter from the Planting Member of Council, dated the 1st November, 1921, and letter from the Secretary, U. P. A. S. I., No. 4814, dated the 19th November, 1921. Mr. Simcock mentioned that he had received a copy of the Advocate-General's opinion, which had been refused to the Planting Member of Council, and which fully upheld the opinion expressed by the Collector of Coimbatore. Mr. Simcock had just received compensation for damage done to his coffee as the result of a road being made to the quarries referred to, and preferred that no further action be taken in the matter. The meeting was in agreement with this.

OPIUM SHOP.—Read letter from the Collector of Coimbatore, Ref. 4316/21-B-2, dated the 31st October, 1921, suggesting, the abvisability of opening a pucca opium shop on the Valparai Township. Mr. Napier spoke strongly against this suggestion, and the Honorary Secretary was directed to advise the Collector that the Association is not in favour of such a shop.

LOCATION OF POLICE STATION.—The Chairman referred to correspondence received from the P. W. D. and the D. S. P., in which suggestion has been made as to the location of these buildings. Certain members of the General Committee had met on the Township that morning, and duly considered the suggestions. Those members were in agreement with the sites suggested, and the meeting instructed the Honorary Secretary to reply to the D. S. P. accordingly.

SHANDIES:—Read application for use of the shandies as a motor oil and petrol store, from a certain contractor for whom permission to use this building for other purposes had previously been refused. The meeting disapproved of the application. Mr. Stewart mentioned that he had been in correspondence with a certain Rowther, of good standing, desirous of opening shops on estates, and the meeting asked Mr. Stewart to enquire if this man would make use of the Shandies, or be prepared to build a shop for himself on the Township. Considerable discussion took place, and the following resolution, proposed by Mr. Carless, and seconded by Mr. Tyler, was carried unanimously :—

> "That the sum of Rs. 500 shall be put aside, from Association funds, for the purpose of cleaning up 5 acres of the Township site, and keeping it clear of weeds or cheddies for one year, with a view to attracting bazaar contractors."

The Honorary Secretary suggested additions to and improvements to the present building, for the same purpose, but further expenditure in this direction was deprecated.

U. P. A. S. I. LABOUR COMMISSION :—Letter from the Secretary, U. P. A. S. I., No 4717, dated the 14th November, 1921, copy of which had been circulated to all Managers, was taken as read.

TRANSPORT :—Read letters received by Mr. Simcock, from Mr. Morris, and referred to the letters from several Calcutta engineering firms, Messrs Massey & Co., Ltd., etc.

The Chairman suggested that Mr. Stanton be referred to, through Mr. J. A. Richardson, with a view to obtaining his advice on the matter, and the meeting was in agreement with this suggestion. Mr. Francis referred to a conversation he had recently had with a certain engineer with considerable experience of lorries during war time, who stated that the Fiat lorries would, in all probability be of use to the District, being built for similar work in Italy.

CORRESPONDENCE.—Read letter from the Secretary, U. P. A. S. I., No. 5118, dated the 5th December, 1921, in connection with the proposed collection of subscriptions by the U. P. A. S. I.

The Honorary Secretary stated that, in his opinion, it would be preferable to continue as at present, and it was decided that it was a matter that should be left entirely to the discretion of the Honorary Secretary to be elected this day.

Letters Nos. 5084 and 5070, from the Secretary, U. P. A. S. I., both dated the 2nd December, 1921, anent the declaration of acreages and the Anti-Hookworm Campaign, respectively, were taken as read, copies having been forwarded to all Managers.

Read letter from Mr. A. Hall, dated the 1st December, 1921, in connection with his desire to cease to be a Member of the Association at the end of the current year. The Honorary Secretary was directed to advise Mr. Hall that the Association intended to enforce payment of subscription, up till the 31stMarch, 1924, on legal grounds.

The letter from the Deputy Director of Agriculture, (Planting Districts), D. O. No. 897, dated the 16th November, 1921, was taken as read, copies having been circulated to all Managers. The Honorary Secretary was directed to ascertaining the smallest quantity of lime that Messrs Massey & Co, Ltd., would take.

Read notice from the "Fort St. George Gazette", stating that subscription was due. The meeting considered it unnecessary to continue this subscription.

Read and noted letter from the Collector, Coimbatore, dated the 12th December, 1921, anent the discharge of Moplah coolies from estates.

PAPERS ON THE TABLE.—
"Land Settlement in South Africa".
"The Memorial Settlers' Association".
"Bullet. of the Rubber Growers' Association", August, 1921.
Do do September, 1921,
Do do catalogue of British Malaya Exhibit, Ceylon Exhibit, and Rubber Growers' Association Exhibit.

(Signed) J. HATTON-ROBINSON,
Chairman
(,,) J. E. SAMPSON,
Honorary Secretary.

ANAMALLAI PLANTERS' ASSOCIATION

MINUTES OF AN EXTRAORDINARY GENERAL MEETING OF THE ANAMALLAI PLANTERS' ASSOCIATION, HELD AT THE ANAMALLAI CLUB, ON WEDNESDAY, THE 14TH DECEMBER, 1921, AT 3-0 P. M.

PRESENT.—Messrs J. Hatton Robinson, (Chairman), C. W. R. Tyler, J. H. Ireland—Jones, D. Cooper, W. V. Reilly, E. H Francis, E. Johnson, E. N. House, S. Sladden, J. E. Carless, I. Stewart, E. W. Simcock, P. Purwen, W. Ogilvy and J. E. Sampson, (Honorary Secretary).

ELECTION TO GENERAL COMMITTEE :—The election of Mr. House to the General Committee, *vice* Mr. Congreve, as agreed upon this morning, was duly confirmed.

MEMORANDUM AND ARTICLES OF ASSOCIATION :—The necessary signatures were obtained, and witnessed, and the Honorary Secretary directed to forward these papers to the Secretary, U. P. A. S. I.

RESIGNATION AND ELECTION OF HONORARY SECRETARY :—The Chairman regretted that, owing to the Honorary Secretary's early departure for England, on furlough, it was now necessary to dispense with his services, and spoke as follows :—

> " Mr. Sampson, let me thank you most heartily on behalf of the Association, for all the good work you have done for us during the past 2½ years. You have always been untiring in your efforts to keep the Association up to date, and have taken all the extra work given you without a grumble.
>
> "As Chairman, I have to personally thank you for the great courtesy and assistance you have always extended to me. As a mark of the Association's esteem and appreciation of your work, I have been requested to ask you to accept a small memento from the Association, which will be presented to you before you leave for Home on your well-earned holiday."

The Honorary Secretary replied shortly, thanking the members for their kindness,

A ballot was then taken, and Mr. Cooper duly elected Honorary Secretary. Mr. Cooper very kindly consented to undertake the work.

With a vote of thanks to the Chair, the meeting terminated.

(Signed) J. HATTON-ROBINSON,
Chairman.
(,,) J. E. SAMPSON,
Honorary Secretary.

BABABUDIN PLANTERS' ASSOCIATION.

The Annual General Meeting of the Association was held at Santaveri on 27-11-21.

PRESENT.—Messrs. S. H. Dennis (Chairman), F. Hugonin, E. H. Thompson, H. Kerr, S. J. Wilson, F. D. Meppen, A. C. W. Denne, and N. Kirwan (Hon. Secy.)

VISITOR:—Mr. Gurudiengar, Amildar, Tarikere.

Notice calling the Meeting having been read, and the Minutes of the previous Meeting confirmed.

Mr. Wilson expressed Mr. Oliver's regrets at not being able to attend the Meeting.

CHAIRMAN'S ADDRESS.

Gentlemen,—We are glad to welcome back to India three of our Members, and postponed having this meeting until to-day so that we could have them with us.

As regards Coffee. The past season's crop was moderate, and prices, although not quite so good as 1919-1920, were still satisfactory. Our present crop is a good one, but I fancy not so good as we anticipated at blossoming time. Prices promise to be better than last year, probably due to the East India Crop generally being short. The trees are looking better than I have seen them for some years, and ought to do well next season.

The monsoon is up to the average, notwithstanding the scare we got in June/July, when it disappeared for a month. Crops out East are good, so that grain prices should revert to normal when they are harvested.

Some of our roads leave much to be desired, but our District Executive Engineer is doing what he can to put them in order; a neglected road takes time to reclaim, or put in order again.

We have to decide to-day as to what sort of a shed we are going to erect at Birur. The land is in our possession. All formalities have been completed. Personally I favour Mr. Kerr's scheme, the estimates and specifications of which are on the table As a matter of fact, I think we decided at our Meeting last April to accept it, but it will do no harm to discuss it again to-day for the benefit of members who were not present at that meeting.

During the year under review the Mysore Durbar granted us the privilege of sending a Delegate to the Mysore Representative Assembly.

Before closing I must thank Mr. Kirwan for stepping into the breach as Hon. Secretary when Mr. Kerr had to go home, and Mr. Kerr for also doing so when Mr. Sylk left the District. The Hon. Secretaryship these days is no sinecure, and takes up a lot of a busy man's time.

(2) The Honorary Secretary placed the Accounts before the Meeting, and Messrs. Donne and Thompson were appointed Auditors for the past and present year's Accounts.

(3) It was decided to change the financial year to April 1st—March 31st, the present year to be closed on the latter date.

(4) Unpaid subscriptions amounting to Rs. 2,252 were reported to the Meeting, nearly half being due on the current call. The Honorary Secretary was instructed to send a copy of the legal opinion. and the resolutions passed in this connection at the last U. P. A. Meeting to certain defaulting members.

(5). The payment of the extra 2 annas to the U. P. A. for the current year out of Association funds was confirmed.

(6). The Honorary Secretary was instructed to write to the Executive Engineer, and draw his attention to the overgrown state of the Chikmagalur —Tarikere Road, particularly miles 10-24.

(7). Birur Manure Shed. Messrs. Kerr and Dennis were authorised to commence construction of the shed.

(8). A vote of thanks to the Delegates to the U. P. A. General Meeting was passed, and payment of expenses sanctioned.

(9). Mr. Vincent's scheme and 'rates of pay' were discussed.

(10) The proposed central Committee of the three Mysore Association was agreed to.

(11) Correspondence was read and dealt with.

(12) The present executive agreed to remain in office until the next Annual General Meeting.

With a vote of thanks to Mr. Dennis for his hospitality, the meeting terminated.

(Signed) S. H. DENNIS,
Chairman.

(„) N. KIRWAN,
Hon. Secy.

RUBBER TRADE ASSOCIATION OF LONDON.

Monthly Statistics.

NOVEMBER, 1921.

Movements of all kinds of Rubber to and from the United Kingdom as per BOARD OF TRADE RETURNS.

IMPORTS.

From	October.			Ten Months ended Oct		
	1921.	1920.	1913.	1921.	1920.	1913
Straits Settlements and F. M. S. ...	3,445	6,567	2,411	43,393	49,633	20,539
Ceylon and British India ...	1,329	2,746	981	16,193	22,286	6,042
Dutch East Indies, &c. ...	808	941	196	13,506	9,678	1,410
Brazil and Peru ...	178	653	1,269	1,774	7,707	14,888
Other Countries ...	6	133	1,289	584	2,861	15,537
Total Tons ...	5,766	11,040	6,146	75,450	92,165	58,416

EXPORTS.

To	October.			Ten months ended Oct.		
	1921.	1920.	1913.	1921.	1920.	1913.
United States of America ...	3,080	33	1,453	14,956	24,784	14,251
Canada ...	55	45	51	114	2,977	399
France ...	1,373	463	637	5,979	11,309	4,179
Belgium ...	114	58	336	908	1,980	1,850
Italy ...	261	51	70	1,121	2,523	234
Spain ...	28	10	5	132	171	58
Germany, Austria, Hungary ...	920	608	730	6,839	3,993	8,466
Russia ...	...	1	423	163	41	5,184
Sweden, Norway and Denmark ...	81	42	23	685	995	565
Other Countries in Europe ...	568	116	120	2,377	779	1,043
Other Extra Euopean Countries...	5	23	51	46	992	613
Total Tons ...	6,485	1,450	3,899	33,320	50,544	36,842

LANDINGS, DELIVERIES and STOCKS in London and Liverpool as returned by the Warehouses and Wharves during the month of October.

		Landed for Oct.	Delivered for Oct.	Stocks 31st Oct. 1921.	1920.	1919.
LONDON ...	Plantation ...	4,716	7,028	68,894*	41,291	24,436
	Other Grades...	7	34	335	452	559
LIVERPOOL...	Plantation ...	408†	386†	8,247†	2,596†	1,965†
	Para & Peruvian	550	330	1,440	801	1,000
	Other Grades.,	...	...	457	443	413
Totals London & Liverpool ...		5,681	7,778	79,373	45,583	28,373

† Official Returns from the six recognised Public Warehouses.

* Adjusted owing to stock-taking at various Wharves.

Movements of all kinds of Rubber, excluding Gutta, Balata and Guayule, to and from the U. S. A., AS PER RETURNS OF THE UNITED STATES DEPARTMENT OF COMMERCE.

	August. 1921.	1920.	1919.	Eight Months ended Aug. 1921.	1920.	1919.
IMPORTS ...	14,778	19,664	10,027	99,423	205,816	156,327
EXPORTS ...	447	306	114	3,449	1,812	1,241

RECEIPTS AT PARA.

	August. 1921.	1920.	1919.	Jan./Aug. (8 months). 1921.	1920.	1919.
Rubber ...	901	1,469	2,190	9,296	15,481	17,165
Caucho ...	410	383	960	3,535	5,333	5,600
Total...	1,311	1,852	3,150	12,831	20,814	22,765

Agricultural Bacteriology.

By Mrs. Dorothy Norris, M. Sc., Agricultural Bacteriologist to the Government of Madras.

(Paper read at the Madras Agricultural Students' Union Conference, Coimbatore, 19th Dec. 1921).

One of the outstanding agricultural problems of the present day is the question of manures.

In Western countries, where mechanical power is rapidly replacing that of animals, supplies of natural manure are quickly diminishing, and the position is little better in this country, where much of the available farmyard manure is utilised for fuel. China and Japan on the other hand, appear to have realised the gravity of the situation, and conserve every scrap of human and animal excreta for use on the land.

In view of the foregoing, it is therefore of great interest to note research work on artificial manures carried out by Hutchinson and Richards at Rothamstead. So far as can be gauged at present, this work has opened up fresh possibilities, which may revolutionise the question of manuring in the near future, for its limitations should be very quickly disposed of now that the main problem appears to have been solved.

The process may be briefly described as follows :—

It consists of the bacterial fermentation of straw or other waste cellulose containing material, in the presence of a suitable nitrogenous compound.

The three essential factors are :—

1. Air supply,
2. Favourable temperature, and
3. Supply of suitable soluble nitrogen compounds.

The basic material is waste straw from any available source, and this is fermented aerobically.

The temperature rises during fermentation to 65° C. when the nitrogen supply is properly adjusted.

The reaction must be neutral, or only slightly alkaline. Hence ammonium sulphate alone as a source of nitrogen is no use, because the medium soon becomes acid.

Nitrogen must be present in an available or indirectly available form, and must not exceed a definite concentration, *e. g.* if ammonium carbonate from decomposition of urea is used, and exceeds a certain limit, the breakdown changes cease until the concentration or the alkalinity has been reduced by loss of nitrogen.

a. It the straw is overloaded with nitrogen loss occurs.

b. If the exact amount is present the straw rots without loss.

c. If the straw is undersaturated nitrogen, particularly in the form of Ammonia, can be picked up by the organism present.

The nitrogen appears to be stored in an organic or non-ammoniacal form.

The amount of nitrogen necessary varies from 0·70 to 0 75 pts. of nitrogen per 100 pts. straw, and a stabilised product is obtained, when rotting has proceeded to 40%, which usually possesses a Nitrogen content of 2% calculated on the dry material. Urea and ammonium carbonate have been found the most suitable carriers of Nitrogen on a large scale, as they give a favourable reaction, they are however expensive. Cyanamide and ammonium sulphate may be used, but the latter must be supplemented by a base, Hence future work should be directed towards one provision of cheaper sources of nitrogen. In preparing the straw for fermentation it is best to heap it and sprinkle with water and leave for two days, when a further sprinkling may be given. When the interior is uniformly moist the nitrogen may be applied in solution, or broadcasted and watered in. The resultant manure is a well disintegrated plastic material which closely resembles well rotted farmyard manure, and has so far given excellent results during trials.

At the same time, although it is possible in this way to make manure without the intervention of animals, the process can be made to utilise liquid manure as the source of nitrogen by allowing this to run through the straw under conditions which encourage the absorption of nitrogen compounds.

To turn from this to the many bacteriological problems connected with the soil itself, it is at onee obvious that an immense field for work exists.

It is well known of course that the soil is inhabited by a great variety of micro-organisms, but we know very little about them either individually or in their relationship to growing plants, although soil fertility is greatly affected by their activities.

The usual methods of investigation are extremely artificial. The organism is picked out and studied on arbitrary media—that is to say it is brought under unnatural conditions the moment it is removed from its ordinary environment. The method has undoubtedly given useful results, but it is naturally open to defects. For one thing micro-organisms are considerably influenced by the medium in which they happen to find themselves, and may react totally differently according to the conditions in which they are placed. In fact this method, which may be termed the direct method, has proved very difficult, and has given good results only in the hands of a few workers such as Winogradski, Beijerinck and others.

The more useful methods in use are indirect, and may be classified as follows :—

1. Use of various culture media arranged to bring out different groups of organisms. These are usually arranged to favour nitrification, ammonia production, nitrogen fixation and denitrification.

Here again the fundamental objection to the method is that the reactions are studied in medium very different from ordinary soil.

2. Counts of bacteria are made from soil suspensions suitably diluted on solid culture medium. This method is also faulty, because firstly no medium is known which will bring out all the soil organisms, so that the results are always low, and no medium even distantly resembles the soil in composition or structure, so that the flora obtained on the plates does not necessarily reflect the flora active in the soil.

3. Chemical determinations of the rate of progress of the various changes going on in the soil—absorption of oxygen, evolution of carbon dioxide, production of nitrate etc.

If the second and third methods are used in conjunction useful results may be obtained. For example, increase in bacterial numbers are so often associated with increased production of nitrate that one is justified in making the assumption that the phenomena are connected. This is not always the case, however, for example, when ammonia producing organisms are caused to multiply by partial sterilisation of soil they do not increase the stock of ammonia and nitrates beyond a certain limiting amount.

On the other hand bacterial activity may show no sort of relationship with soil fertility because there is some other limiting factor other than nitrogen supply or rate of decomposition of plant residues.

4. The bacterial activity may on the surface appear to be directly related to soil fertility, but the relationship is accidental, both bacteria and plants being limited by the same factor, *e. g.*, by acid rain water in districts where there are chemical works.

The above outline indicates very briefly some of the principle methods by which soil bacteriological problems are attacked. Soil conditions have naturally a considerable effect on bacterial numbers and on flora generally, and in this country, with its vast extremes of climate, interesting results are certain to be obtained as soon as data have been collected.

Bacteria being living organisms, it is natural to suppose that their activity increases with the temperature up to a certain point. The amount of nitrate produced does show this increase, but bacterial nembers do not.

Increasing moisture supply also causes an increase in bacterial numbers, but this is not regular, and the rate of nitrate production rises to a maximum and then falls, consequent on the lack of air caused by the saturation of the soil. Excess of water will of course also wash out the resulting nitrate from the soil.

The effect of added organic matter is to increase the supplies of energy and therefore to increase bacterial numbers, although whether nitrate supplies will be increased depends on the proportion of nitrogen present in the added matter.

The effects of lime, calcium carbonate and magnesium carbonate have been studied, and the results are somewhat contradictory. Where the work has been done on acid soils, benefit has naturally been derived from neutralisation. In neutral soils less concordant results have been obtained, some observers having observed detrimental effects from further addition of calcium carbonate while others have obtained beneficial results—bacterial number, ammonifying power and nitrifying power all being increased.

Magnesium carbonate may be more effective than calcium carbonate in small quantities but it is toxic in larger amounts. Lime in excess of a certain amount acts as a sterilising agent.

ENEMIES OF BACTERIA IN THE SOIL.

I should like now to refer to a remark I made earlier, about partial sterilisation of soils resulting in the increased production of ammonia producing organisms.

On the surface this would appear the direct opposite of what one should expect. As a matter of fact the apparent contradiction is resolved when one realises that the soil population does not by any means consist mainly of bacteria.

It was found that antiseptics in general first of all diminished the bacterial population, and then led to an enormous increase in numbers, and heat was shown to have the same effect.

Various chemical and physical explanations have been put forward to explain this, but do not wholly account for the facts.

Russell and Hutchinson consider that the soil population is complex, and that some of its numbers act detrimentally on the bacteria, which produce plant nutrients. These detrimental forms are more readily killed than the useful bacteria, with the result that the new population produces more ammonia and nitrate than the old one.

This view is still under dispute, as some investigations do not admit the presence of any biological factor in soils detrimental to bacteria.

I have gone into the question of soil bacteriology in some detail, in order to point out that almost the whole of the results so far have been obtained in temperate climates, thereby indicating how much is to be worked out in the tropics.

Another aspect of Agricultural Bacteriology is that of plant disease.

It is now becoming more and more generally realised that bacterial diseases of plants are as common as any other kind.

This branch of agricultural bacteriology is a very young one, the first mention of a bacterial disease being that of pear blight, about forty years ago. Since that announcement the subject has increased enormously, and it is now generally realised that the distribution of bacterial diseases of plants is universal. This is again a subject which has not received a great deal of attention in the tropics, and so, again, a large field for research awaits the attention of the investigator.

The commonest method of infection is probably through wounds in the plant either above or below ground. This indicates the care that should be taken in pruning, and also shows the part which insects may play in the dissemination of disease.

At the same time it is possible for bacteria to infect plants through their natural openings, such as nectaries, water pores and stomata.

Blossom blight of the pear is an example of the first, black rot of the cabbage of the second and angular leaf spot of cotton is mainly stomatal.

Plant diseases have many features in common with those of animals. There is usually a latent period, or a period of incubation, during which the disease establishes itself in the plant before it is serious enough to be recognised as such by the damage it does. Like an animal disease it may be thrown off without doing much damage, if the plant is under more favourable conditions than the parasite. Everything depends on whether the parasite finds the initial conditions entirely suited to its needs or can by means of its metabolic processes quickly make them so, and thereby make rapid growth.

To illustrate the variation in the appearance of disease from time of infection, one can cite the various soft rots which usually appear in one or two days after inoculation, and Cobb's disease of sugar-cane and Stewart's disease of sweet corn, which may take one to two months. Of course as with animals, the greater the initial infection the shorter the time in which the plant succumbs.

I have already stated that diseases may be transmitted by insects—they can also be carried on the seed and thereby continue from one crop to the next, or they may be carried in the soil itself. Wind and water may also carry infection and possibly birds; the case against the insects molluscs and worms is complete.

I have no time to consider the prevalence and distribution of bacteria plant diseases, but I should just like to touch on the methods of control. I may say at once, in most cases these still remain to be worked out.

Where diseases are transmitted by seeds, bulbs or tubers and cuttings, the obvious remedy is to use these from disease free stock.

Some seeds will stand treatment in various antiseptics, but care has to be taken in the use of these, as germination may be injured. Germicidal sprays and control of insects by sprays will keep certain diseases in check, and disease resistant varieties should be grown wherever possible.

The Planters' Chronicle.

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Edwin Vincent, Managing Editor, Coimbatore.

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THE CRICKET MATCH.

Readers of the *Madras Mail* will have watched with interest the doings of the planters' team in Madras this past week, and will agree with us when we say that, in spite of such an important factor as lack of practice, the team put up an admirable performance. It was most unfortunate that rain should have prevented the match being played to a finish, as in spite of the planters losing 3 good wickets for 11 runs in their second innings the task of knocking up the 240 runs required was not beyond the capabilities of the remainder of the side.

The match with Secunderabad having fallen through, a game was arranged, M. C. C. *v.* Mofussil, and it is gratifying to note that no less than four members of the Mofussil team are planters. That they will acquit themselves creditably may be taken for granted. More gratifying still is the news we have just received that two members of the planters' team, Messrs Sullivan and Anstead, have been invited to play for the Europeans in the Presidency—Hindu Match on Sunday, Monday and Tuesday the 8th, 9th and 10th of January.

We take this opportunity of expressing our appreciation of the team's efforts feeling certain that we have the whole of the planting community with us in thanking them for so worthily upholding our prestige. So that record of their achievement may not be lost, we append details of the scores as they appeared in the *Madras Mail*.

M. C. C.

1st Innings.		2nd Innings.	
R. Cumming, c Maule, b Dixon	... 25	c Maule, b Anstead ...	9
G. Aste, l-b-w, b Cooper	... 2	not out ...	0
E. K. Shattock, b Sullivan	... 69	c English, b Sullivan...	0
R. D. Denniston, l-b-w, b Cooper	... 7	c Grandage, b Cooper..	64
R. B. Carrick, c Sullivan, b Anstead	... 46	b Anstead ...	17
S. A. Arthur, b Anstead	... 15	c Schwinde, b Sullivan.	28
B. W. Whitelaw, b Cooper	... 1	b Sullivan ...	2
Major Bradfield, not out	... 36	c Maule, b Dixon ...	81
G. R. F. Tottenham, c English, b Cooper	... 18	b Sullivan ...	0
H. M. Le Marchand, b Cooper	... 0	b Cooper ...	7
Major Mouat, l-b-w, b Sullivan	... 0	Absent ...	—
Extras	... 5	Extras ...	15
Total	... 224	Total ...	223

Bowling Analysis.

	O.	M.	R.	W.	O.	M.	R.	W.
Sullivan ...	12	1	67	2	17	2	85	4
Cooper ...	12'5	1	45	5	13	2	58	2
Anstead ...	9	2	58	2	7'3	1	37	2
Schwinde ...	5	0	31	0	1	0	8	0
Dixon ...	5	1	18	1	3	0	20	1

PLANTERS.

1st Innings.		2nd Innings.	
R. D. Anstead, c and b Denniston	... 45	b Le Marchand ...	1
R. W. Tremlin, b Denniston	... 24	not out ...	1
H. J. C. Hammond, c Shattock, b Le Marchand	... 52	b Tottenham ...	5
F. G. Grandage, c and b Aste	... 13	b Le Marchand ...	0
J. H. B. Sullivan, b Le Marchand	... 2	Did not bat.	
E. G. F. Maule, c Tottenham, b Le Marchand	... 0		
W. J. Dixon, b Cumming	... 8		
H. H. English, st. Shattock, b Aste	... 5		
D. Cooper, b Aste	... 10		
F. L. Schwinde, st. Shattock, b Denniston	... 20		
H. V. Hankin, not out	... 0		
Extras	... 25	Extras ...	4
Total	...204	Total (for 3 wkts) ...	11

Bowling Analysis.

	O.	M.	R.	W.	O.	M.	R.	W.
Le Marchand ...	15	5	56	3	1'4	0	5	2
Tottenham ...	10	2	35	0	1	0	2	1
Carrick ...	5	1	23	0				
Aste ...	9'2	2	28	3				
Denniston ...	7	1	23	3				
Cumming ...	3	0	14	1				

SCIENTIFIC DEPARTMENT, U. P. A. S. I.

REPORT No. 30.

The Deputy Director of Agriculture, Planting Districts, was at headquarters throughout the week. On 20th and 21st, the Annual Agricultural Conference under the auspices of the Madras Agricultural Students' Union was held at the Agricultural College, and some interesting papers were read. The Director of Agriculture was present, and a Meeting of the Deputy Directors of Agriculture was held to discuss the work of the Department, and this was attended by Mr. Anstead.

2. THE EXPERIMENT STATIONS.—At the *Coffee Experiment Station*, dry weather conditions continued to prevail during the week, and the Coffee is shedding its leaves attacked by leaf disease. The second round of picking has been completed, and has yielded 5,849 lbs. of ripe cherry. At the next round, the Coffee will be stripped, and the harvest completed.

At the *Tea Experiment Station*, there was no rain during the week. Several of the pruned plots were tipped. From the other plots 521 lbs. of green leaf were plucked. Draining operations in the swamp have been continued. The dry weather is beginning to affect the green dressings, as is to be expected.

At the *Rubber Experiment Station*, *Mooply*, hot dry weather prevailed. Dead wood from the trees is still being collected and burned. Daily tapping was done, and a crop of 113 lbs. of wet sheet and 21 lbs. of wet scrap was obtained from 1,255 trees, a yield of 0·107 lb per tree, as compared with 0·115 lb. last week. Wintering has begun, and tapping will be stopped at the end of the month. The Station was visited during the week by the Rubber Mycologist, who is conducting some special experiments there.

At the *Rubber Experiment Station*, *Tenmalai*, there was no rain during the week. 391 trees were tapped daily, and 55 lbs. of wet rubber and 7·212 lbs. of wet scrap obtained, a yield of 0·159 lb. per tree as compared with 0·164 lb. last week.

(Signed) RUDOLPH D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

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SCIENTIFIC DEPARTMENT, U. P. A. S. I.

The Value of Line Refuse Manure on Estates.

A great deal of interest and importance is attached just now to the preservation and use of all forms of indigenous manures, more especially, composts and cattle manure. The Agricultural Department have always attached a great deal of importance to this subject, and have, in the past, devoted a great deal of time to the study of the subject. It is felt that the Department can usefully devote still more attention to the detailed study of methods of making and preservation of composts and cattle manure, and a new set of experiments to this end will be laid down under the advice and direction of the Government Agricultural Chemist and Bacteriologist.

The subject is of importance to planters, since they require organic matter and nitrogen very largely on their estates, and the price of the imported article is annually increasing, while transport charges are always high. I have, from time to time, pointed out in the pages of the "Planters' Chronicle," how composts can be made and local sources of organic manurial material, including weeds and coarse vegetation from waste lands, taken the fullest advantage of.

On the Experiment Stations, several experiments are being tried to throw light on this question.

At the Coffee Experiment Station, two compost pits have been maintained since its inception for the collection and storage of refuse from the cooly lines and from the Farm Manager's bungalow. The material consists solely of ashes and general line and bungalow refuse with a certain amount of weeds, etc., obtained when road sides and road side drains are cleaned. These pits have just been emptied, and the material analysed, with the following result :—

		%
Moisture	...	3·82
Loss on ignition	...	10·08
Insoluble matter	...	63·81
Soluble matter	...	22·29
		100·00
Nitrogen	...	0·326
Phosphoric Acid	...	0·731
Potash	...	0·491

The manure, as would be expected from the nature of the materials from which it was made, is almost entirely a mineral manure, and contains little organic matter and nitrogen, but it is still of value. In estimating this value, from a plantation point of view, we can only take the unit prices of the plant food in it as represented by the price of these in the godowns of a coast firm. The latest figures I have of these are as follows :—

		As.	P.	
Organic Nitrogen as Poonac.	...	9	8	per lb.
Phosphoric Acid.	...	1	5	"
Potash.	...	5	11	"

The figure for Phosphoric Acid is based on Bone Meal, an organic source. If this plant food is obtained from a mineral source, the unit price is 3 as. 10 p. per lb. in its cheapest form (Basic Slag), but for the purpose of our valuation, the lower figure has been used. On this basis, our compost is valued at Rs. 7-3-0 per ton.

Now this may appear very small, but it must be remembered that there is no cost for transport, which amounts to Rs. 15 or more per ton, on the average for most estates. Also the cost of collection is practically nil. At the Coffee Station, the pits were situated just behind the cooly lines and close to the Bungalow. Each day the coolies were made to sweep up the lines and place all the refuse in the pits, and a little dry earth was put on the top to keep the pits clean and sweet. On estates, a pit might be conveniently made close to each set of lines, and a similar practice adopted.

As regards quantity at the Station, 20 tons of compost were obtained during a period of 12 months from a set of lines occupied by 20 coolies, and from a bungalow occupied by the Farm Manager and his family. From this small community, manure to the value of Rs. 140 has been obtained. On large estates, a very much larger amount could be obtained.

It may be argued that the refuse from the cooly lines gets into the Coffee or Tea as the case may be, in any case. This may be so, but it is often concentrated where it is not wanted, and much is wasted, since it gets wet and, largely consisting of ashes as it does, much of its value is leached out and lost. It is better to collect it systematically and preserve it till it is needed.

Now, as to its manurial value in the field. The compost was applied in May at the rate of 5 tons per acre, and in September, at the rate of 10 tons per acre, to a particularly poor piece of coffee. The improvement of the trees has been most marked in this short time, and that improvement will, probably, show up in the crop. The bushes receiving this compost, despite its low manurial value as indicated by chemical analysis, have improved in health and growth more than those manured much more heavily with recognised fertilisers. I, therefore, commend the collection and preservation of this material to planters, and its use on poor patches of Coffee.

(Signed) RUDOLPH D. ANSTEAD,
Deputy Director of Agriculture, Planting Districts.

WYNAAD PLANTERS' ASSOCIATION.

PROCEEDINGS OF AN ORDINARY GENERAL MEETING, HELD AT THE MEPPADI CLUB, ON THE 14TH DECEMBER, 1921, AT 2 P. M.

PRESENT.—Messrs. C. E. Abbott, (Chairman), B. M. Behr, H. R. Bowling, W. G. Craig, C. E. A. Ewart, P. B. Vincent, S. H. Powell, J. C. Blackham, B. Malcolm, and J. A. Gwynne, Honorary Secretary.

Proceedings of last meeting were confirmed.

U. P. A. S. I. GENERAL COMMITTEE MEETING.—Mr. B. M. Behr, who attended the General Committee Meeting at Coimbatore as Delegate, read his report to the Meeting, and explained items of interest for which he was thanked.

LOCAL ADMINISTRATION.—Letters from Mr. J. A. Richardson, M.L.C., Mr. J. F. Richards and the Secretary, U. P. A. S. I., regarding the matter of a separate District Board for the Wynaad were read. After discussion, it was decided that the Honorary Secretary write to Mr. Richardson and accept his advice as stated in his memorandum to the Secretary, U. P. A. S. I., and thank him heartily for what he has done in the matter.

INCORPORATION.—The Honorary Secretary explained the position of the Meeting, and he was asked to write to Messrs. Harrisons and Crosfield, Ltd., and the Panora Tea and Produce Co., Ltd, to enquire if they were agreeable now to the incorporation of the Association.

ANTI-HOOKWORM CAMPAIGN.—The matter of adopting Dr. Kendrick's proposals was brought up, and it was decided to draw the attention of the Medical Committees of the District to the proposals, and ask what they intend to do.

CORRESPONDENCE.—Letters were read from the President, Malabar District Board, regarding to the repairs to the damaged bridges on the Sultan's Battery-Nulpuza Road; from the Secretary, U. P. A. S. I., regarding the proposed Shoranur-Manantoddy Railway—cost of Liquid Fuel—the Labour Commission and the collection of subscriptions by Head Office—from the Divisional Officer, Wynaad, regarding the value and stamping of Agreement forms, and from the Superintendent of Post Offices, Malabar Division in connection with free medical attendance at certain branch offices, and the late delivery of Mails in the Wynaad. These were recorded.

With a vote of thanks to the Chair, the Meeting terminated.

(Signed) C. E. ABBOTT,
Chairman.

(„) J. A. GWYNNE,
Hon. Secretary.

Note.—For the information of members the following is published in connection with the question of the confirmation of the Proceedings of Meetings:—

1. It is the record of the proceedings that is confirmed, and not the resolutions passed.
2. Every resolution passed at any Meeting is definitely passed and requires no confirmation with the exception of a special resolution to amend or alter the Articles of Association.

INDIAN TEA ASSOCIATION.

ABSTRACT OF PROCEEDINGS OF A MEETING OF THE GENERAL COMMITTEE, HELD AT CALCUTTA, ON 6TH DECEMBER, 1921.

CORRESPONDENCE WITH THE INDIAN TEA ASSOCIATION (London).—Letters, dated 10th and 17th November from the Indian Tea Association London) were before the Committee for consideration. The principal subjects dealt with in these letters were:—

Ocean Freight Agreement.—In the letter of 17th November it was stated that, as this agreement could be terminated next May by three months' notice, the London Committee had had under consideration the question of opening negotiations with the Calcutta Conference with the object of trying to secure a more satisfactory agreement. A Sub-Committee had considered the matter and had reported; they considered that, if the Conference would agree to a flat rate, a rate of from 40/ to 42/6*d* net per measurement ton might be recommended to shippers as fair. If the Conference would not agree to a flat rate, it was suggested that efforts should be made to obtain a new agreement on similar lines to the existing one, except that the present rough cargo

> basis should be broadened in some way, such as by the inclusion of transhipment cargo in the calculation and a rice/wheat quotation; and, if no rice or wheat were carried in any month, that a rate should be taken into account at 2/6*d* less than the linseed rate. The London Committee had, after considering this report, decided that the Sub-Committee should approach the Conference and ask for an informal interview to discuss the matter.

The General Committee noted the terms of this letter. They had, at a special meeting on the previous day, discussed the position with Messrs. Kingsley and McMorran, of the London Association, and it was now agreed that information should be awaited from London as to the suggested interview with representatives of the Liners Conference.

THE INDIAN FACTORIES BILL, 1921.—The Committee had received a letter, dated 25th November from the Bengal Chamber of Commerce, enclosing, for the information of the Association, and for any remarks they might care to make, copy of a memorandum by the Hon'ble Sir Alexander Murray, C.B E., on certain points raised by the Bombay Chamber in connection with the above Bill.

This memorandum examined the draft of the new Bill in the light of the remarks made by the Bombay Chamber, and the conclusion was come to that amendment of the draft Bill was still required to provide for exemptions which would enable such establishments as engineering workshops to deal with urgent repairs of machinery or other plant. The Committee thought that the points raised did not materially concern the tea industry, and they directed that a reply should be sent to the Chamber to the effect that the Association had no special remarks to make on the points involved.

OCEAN FREIGHT AGREEMENT: TEA RATE FOR DECEMBER.—(*a*) A letter, dated 1st December from the Bengal Chamber of Commerce announced that the tea rate for December would be £ 3-5-0. The rate had been intimated to members, and cables had been sent with the information to the London Association and to the Ceylon Chamber of Commerce.

(*b*) The Committee had had information of reduced freight rates being quoted by Dutch and German Lines for rough cargo from Calcutta to Continental Ports. The London Association had been informed of this by cable despatched on 1st December reading as follows:—

> Dutch and German Lines quoting 30 shillings linseed jute basis continental ports. Understand British Lines quoting similar rates. London rate at present 45 shillings net.

It was hoped the London Association would be able to bring pressure to bear on the Lines at home to secure some equivalent reduction in the tea rate to London.

BRITISH EMPIRE EXHIBITION, 1923.—A paragraph on this subject was included in the proceedings of last Committee meeting. It was then stated that papers on the subject of the British Empire Exhibition which it was proposed to hold in 1923 had been received from the London Association, who stated that they had decided to defer consideration of the question of exhibiting until it were definitely known whether or not the Government of India was to support the Exhibition.

This Association had not been addressed directly by the Government of India on the subject, but the Bengal Chamber of Commerce had received papers from Government regarding it. From these it appeared that there was some likelihood that the exhibition would not take place until 1924, and, for the present, Government had only asked the Chamber whether any information was required by them on preliminary points in connection with the exhibition. It appeared, from the papers, that the proposed site of the exhibition, Wembley Park, had been visited by Sir William Meyer, High Commissioner for India, Sir Louis Kershaw, of the India Office, and Mr. Chadwick, Indian Trade Commissioner, along with the Managing Director of the exhibition and the Architects; and that the exhibition authorities proposed to assign provisionally to India an exceptionally good position. This information had been passed on to the London Association.

PRIVATE SALES.—In a letter, dated 2nd December, Messrs. Davenport & Co. enquired whether the arrangement had been rescinded under which it was agreed that no private sales should be made except of whole crops; their reason for making the enquiry was that they understood certain private sales had taken place, and they had not received any intimation to the effect that the arrangement had been withdrawn.

The Committee discussed the matter. The arrangement that private sales, except of whole crops, should not be made had not been withdrawn; and in the opinion of the Committee it was desirable that it should continue. It appeared, however, that there had been a misunderstanding on the part of one agency house who had effected some private sales under the impression that, as regulation of public auctions had not been necessary during the current season, there was no restriction in the matter of private sales; the position was now, however, appreciated, and no further private sales would be made. Messrs. Davenport & Co. were to be informed accordingly.

TEA WASTE.—It was brought to the notice of the Committee that in some cases sales of tea waste had recently been made on the gardens, and the Committee decided to recommend to members that such sales should not be made, but that all tea waste should either be destroyed or consigned to Calcutta for sale to firms who exported tea waste for the manufacture of caffeine.

SCIENTIFIC DEPARTMENT: (*a*) *Agricultural Chemist.*—In the proceedings of the meeting, held on 8th November, reference was made to a proposal in this connection put forward to the London Association by Messrs. Begg, Roberts & Co. This related to the engagement, by the Scientific Department, of a chemist who would be lent to one of their companies, the company bearing the whole expense involved. Consideration of the matter had been deferred pending a meeting which it was proposed to arrange with Messrs. Kingsley and McMorran, of the London Association, and Mr. Carpenter, the Chief Scientific Officer. This meeting had taken place on 5th December when the subject was fully discussed, and when it was agreed that the proposal should be given effect to.

A telegram, dated 1st December had been received from the London Association asking whether they might now engage a chemist on the terms explained, as they had a suitable applicant, and it was decided to reply in the affirmative. The Committee were, at the same time, inclined to doubt whether it would be expedient to extend indefinitely the principle involved in making such an appointment as it might be found that, with a large number of such officers throughout the districts, a good deal of the time of the senior officers of the department might be taken up on work in connection with them—a state of matters which might be thought to entail some loss of their time to the ordinary work of the department. And on the whole the Committee felt that they would rather see the Department developed on the lines laid down in their circular No. 5 of 7th January, 1920, although they recognised that, for the present, it was not possible to expand rapidly in that direction.

(b) *Bacteriologist.*—The question of engaging a bacteriologist for the department has been under consideration for some time past, and it was now further discussed. When previously under consideration, it was decided to postpone action pending the provision of laboratory accommodation for an additional officer, but the Committee thought that steps should be taken with a view to bringing out a bacteriologist about the middle of next year. They directed that the Chief Scientific Officer should be asked to go into the matter with a view to putting up proposals regarding such an appointment.

FARMYARD MANURE.

The substance that goes by the name of farmyard manure, fold manure, dung, or muck, chiefly consists of (a) the material that was used as litter, usually straw, sometimes peat, bracken, sawdust, &c. ; (b) the food that passed through the animals in an undigested condition and has been voided in the solid form ; and (c) the urine, which contains that part of the food which the animals digested but did not retain in their system. The urine also contains in part the waste of the tissues of the animal's body. The proportions of these parts will vary with circumstances. For instance, when it is the object of the farmer to use up as much straw as possible, a relatively large amount of the farmyard manure will consist of litter, but where litter is used more sparingly, the manure will contain a proportionately greater amount of the solid and liquid excreta.

MANURE PRODUCED BY STOCK.

A bullock or cow weighing 9 cwt. will produce, when kept under cover, about 7 tons of farmyard manure during the winter six months ; if the stock consists, as it generally does, of a fair proportion of younger animals, the output may only average 3 or 4 tons. On a farm with a mixed stock of 50 head, including 3 or 4 horses, enough dung should be produced during winter to give a dressing of 10 or 12 tons per acre to about 15--20 acres of land, or 3—4 acres less when allowance is made for loss during storage.

PRINCIPAL CONSTITUENTS OF FARMYARD MANURE.

From the manurial point of view the three substances that are of most importance in the food are nitrogen, phosphate and potash. Although only one-half of the solid matter in the food reappears in the manure, about three-quarters of the nitrogen, and nine-tenths of the phosphate and potash, are voided. These proportions will be reduced in the case of very young animals, and increased in the case of full-grown fattening cattle. Of the nitrogen that passes through an animal a larger proportion finds its way out in the urine than in the solid excreta. The same is true of the potash, whereas the phosphate is chiefly voided in the dung. It will thus be seen that two of the three valuable elements of plant-food are more abundant in the liquids than in the solids of animal excreta, and not only so but, pound for pound, the substances in the liquids are much more valuable for crops because they are much more readily available. The Rothamsted experiments have shown that a considerable portion of the nitrogen in the solid part of dung can hardly be said to be of any use to plants, whereas the nitrogen of the liquid portion is almost as active, and therefore almost as valuable as the nitrogen in nitrate of soda or sulphate of ammonia.

In a ton of ordinary farmyard manure there is as much nitrogen, phosphate, and potash as in twelve or fifteen shillings' worth of artificial manure, and, if a ton of dung is not usually valued at even half these figures this is chiefly because a large part of the three substances mentioned never becomes available, or is lost before crops can make use of it. True, a ton of farmyard manure is more expensive to handle than 2 or 3 cwt. of artificials, and this, of course, reduces its relative value; but, on the other hand, farmyard manure has a beneficial though indirect influence on crops for the very reason that it is a heavy bulky substance, and the two considerations may therefore be held roughly to balance, or to cancel each other.

VARIATION IN THE QUALITY AND CHARACTER OF DUNG.

The quality and general character of dung is affected by :—

1. *The kind of Food.*—Generally speaking, the richer a food is in fertilising materials, especially nitrogen, the richer is the dung produced, particulary the liquid portion. It may be added that the extra value of "cake fed" manure is chiefly due to the greater amount of available plant-food, and, as this is the part most easily lost, it is particularly important to exercise the greatest possible care in storing such manure.

2. *The kind of Animal.*—Horses produce dry, "hot" dung that ferments and acts quickly, whereas the dung of cattle and pigs is "cold," slow-acting and more durable. The dung of young stores and dairy cows is rather poor in all the important elements of plant-food, because, in the former case, these elements have gone, to a relatively large extent, to form bone and muscle, while in the latter case they have found their way into the milk. For instance, to quote the Rothamsted figures, while the excreta of a fattening bullock getting decorticated cotton cake will contain about 97 per cent. of the nitrogen, 96 per. cent of the phosphoric acid, and 99 per cent. of the potash present in the cake, the corresponding figures for a milk cow are only 87 per cent. for the nitrogen, 89 per cent. for the phosphoric acid, and 86 per cent. for the potash. This means that for every 3 lb. of nitrogen, 4 lb. of phosphoric acid, and 1 lb. of potash that the fattening bullock abstracts, the milk cow appropriates 13 lb., 11 lb., and 14 lb., respectively.

3. *The Age of Dung.*—Rotten dung is richer and more active, provided it has been properly "made," than comparatively fresh undecomposed material. It is, however, necessary to remember that in ordinary practice manure cannot be rotted or stored without serious loss taking place, and while well-rotted manure may contain more plant-food than an equal weight of fresh manure, a given quantity of fresh manure will contain more plant-food than will the rotten manure made from it.

4. *The Manner of Storage.*—Under any ordinary conditions of storage, farmyard manure suffers loss of nitrogen ; with bad management the loss may be very great indeed, and fall on the potash as well as the nitrogen.

5. *The Nature of the Litter.*—Farmyard manure varies considerably in composition according to the character of the material used as a litter for the animals. Common litters which are employed are straw, peat moss litter, bracken, hop bine, leaves, spent tan, and sawdust, and these differ in their power of absorbing the valuable liquid portions of the manure, whilst they also vary in their own composition.

STORAGE OF DUNG IN THE HOMESTEAD.

Even when it is stored under the best conditions, farmyard manure loses a good deal of its most valuable plant food ; under bad conditions the loss may be very great indeed, and it is necessary to remember that the loss falls first on the most available material, and is proportionately much greater in the case of good "cake-fed" manure than in material of lower quality. With the general rise in the price both of manures and feeding stuffs, it will pay farmers to give much more attention to the prevention of this waste than was generally done before the war. The chief causes of loss are :—

(1) Escape of the liquid manure. It is generally recognised that the liquid manure is valuable, but it is seldom realised how much more of the manure value of a concentrated food lies in the liquid than in the solid excreta. Of the manure values of ordinary cakes, from 80 per cent. to 90 per cent. is associated with the urine, and only 20 per cent. to 10 per cent. with the solid dung.

(2) Escape of ammonia as a result of fermentation, particularly where the manure is exposed to air and allowed to become rather dry, under which conditions loss is very great.

The methods of preventing these losses will naturally depend on the conditions under which the stock is kept, but in every case the aim should be to get the manure into the soil at the earliest possible opportunity. Even if it is applied to light dry land in autumn, the loss in the soil will be less than with any system of storage. Furthermore, it is important to remember that every time the manure is turned over or disturbed in any way, fermentation is encouraged by the exposure to the air, and serious loss of nitrogen must follow.

With cattle fattened in covered yards the question is comparatively simple. For the comfort of the animals sufficient bedding must be used to absorb the liquid manure, and there is little or no drainage. The dung is kept well compressed by the animals, and fermentation is reduced to a minimum. Under such conditions very little loss takes place.

With cattle kept in open yards the case is entirely different; it is quite impracticable to use sufficient straw to absorb both the liquid manure and the rain falling into the yard, with the result that drainage must be provided for. Owing to the large bulk of the liquid and its dilute condition it is usually impossible or unprofitable to collect it in tanks, or to cart it on to the land. If, therefore, the liquid cannot be dealt with by some system of direct irrigation, the only advice that can be offered is that the yard, or at least the greater part of it, should be covered. The cost will be recouped in a very few years in the increased value of the manure (even if the better fattening results are not taken into account).

In the case of dairy cows or other cattle tied up in stalls, the question of dealing with the manure is simpler. The liquid manure is practically pure urine, comparatively small in volume and highly valuable, so that it pays well to collect it in a tank and cart it out to grass (to be mown for hay) and other crops. If applied in dry weather direct to grass a certain amount of "burning" of the foliage will be caused, and it should therefore be either diluted with water or applied during showery weather when the ground is in a thoroughly moist condition. The solid manure as a rule contains very little litter, it ferments very slowly and little loss takes place provided that it is made into a compact heap, and the drainage are collected.

The manure from other classes of animals, particularly horses, is very liable to suffer loss by fermentation, and special care should be taken to prevent this. Where cattle are kept in yards the manure from the stables should be carried into the yards and be well distributed. This will reduce the amount of litter required by the cattle and prevent fermentation of the horse manure. If all the cattle on the farm are tied up in stalls, the horse and pig manure should be well mixed with the cattle manure and made into as compact a heap as possible.

Provision of Shelter.—Experiments carried out at Rothamsted show that exposure of the manure heap to rain causes considerable loss of crop-producing power, even more than is indicated by analysis, or by the value of black liquid that drains away. Even a slight shelter, such as a layer of earth, proved beneficial, and if nothing better can be done, the heap can be finished off with a sloping top so that the rain is thrown off instead of washing in.

CONSERVATION AGENTS..

Attention has been directed from time to time to the prevention of loss in manure heaps through adding gypsum, superphosphate of lime, kainit, or sulphuric acid, but though good results have occasionally followed their use, it is now recognised that all are open to objection, and they are not recommended.

Moss litter or peat as a fixer of ammonia and absorbent of liquid is more efficient than straw, and, if for no other reason than to improve the manure heap, it is a good plan to have a little in use for some of the live-stock. Such peaty manure, unless it is being used in a yard, should be spread daily in the dungstead, and the quality of the resulting mass will be thereby appreciably improved.

TREATMENT OF DUNG IN THE FIELD.

Field Storage Heaps.—To save carting in spring, or to empty the dungstead or the yards, it is often necessary, in the course of the winter, to form large field storage heaps. The opportunities for loss in such heaps are much greater than in a proper dungstead, so that field heaps should only be formed if they are the means of gaining an important end. Where these heaps must be formed they should be placed on firm, level ground, and they should be made as deep and firm as possible. The so-called "draw heaps," on to which each cart-load is drawn, thereby consolidating the mass are the best. Subsequently the sides should be trimmed up, and the top should be covered with a layer of soil about a foot thick. Such a covering consolidates the mass, prevents to some extent the passing of ammonia into the air, and runs off rain water, especially if the top be made somewhat roof-shaped.

Uniform Distribution.—When dung comes to be spread on the land, it should be distributed as equally as possible. Sometimes, unfortunately, one sees great lack of care in this respect. In some districts dung is roughly distributed straight from the cart, and if it is at once properly spread by hand labour the results are satisfactory. In other districts, and more frequently, it is unloaded in small heaps about six yards apart. If it is immediately spread this system is usually free from objection, though if the dung is very old, or if it is largely made from moss litter, the spots on which the heaps rest are apt to be left over-manured, and this is especially the case on rough meadows. Too often, however, one sees these small heaps lying unspread for days, and even for weeks, with the result that the rain washes the substance of the dung into the patches on which the heaps rest. These patches are consequently over-manured, as compared with the rest of the field, and an uneven crop is the result.

With farmyard manure, even more than with artificials the farmer should so arrange matters that the quantity of dung at his disposal is distributed over as large an area as is consistent with practical convenience. For instance, twenty tons of dung spread equally on two acres will give a much better return than the same quantity spread on one acre.

Best Time to apply Dung.—As regards the time of year at which dung should be applied, much depends on the circumstances of each particular case. On farms entirely under grass there is no choice but to use the dung on meadows or pastures, and on such farms it would be bad practice not to cart out all available dung as opportunity occurs in autumn, winter and early spring. Late spring dressings, unless the dung is very "short"—*e. g.*, dung made with moss litter—interfere with the work of the mowing-machine and mix with the hay, though this can be avoided by chain harrowing and raking the roughness off some time after dressing.

In the case of green crops, part of the dung may with advantage be ploughed in during autumn, but only on clean land. If foul land, and especially foul strong land, has to be cleaned in spring it will be found that autumn dung, by holding moisture, retards the getting of the land into condition in spring. Autumn manuring would further increase the work of cleaning foul land by promoting the growth of weeds. Again, the action of the cultivator brings much of the dung to the surface, and this, being collected with the weeds, is carted off the land, or possibly wasted by burning. Farmyard manure ploughed in during autumn will decay more rapidly—especially in a mild winter—than if left in the dung-heap, so that a relatively larger proportion will be available for the use of the first crop. On this account the succeeding crops will not get so much benefit, and this fact has to be borne in mind in estimating the respective advantages of autumn and spring dressings.

Experiments on the proper time to apply farmyard manure have been made at several centres. In districts of high rainfall the best results have been obtained by applying in spring. In the West of Scotland twice as great an increase was obtained from spring dressings as from autumn. On the other hand in drier conditions—30 inches or less of rain—the winter dressing have given the best results, besides being often more convenient for the general working of the farm.

COMPARATIVE VALUE OF CAKE-FED AND ORDINARY DUNG.

Experiments which have been carried out at Rothamsted and at the Norfolk Agricultural Station, during recent years, indicate that it is questionable if the practice of feeding large quantities of cake with a view to the production of rich manure is a profitable one. These experiments showed that, compared with the dung obtained by feeding roots and hay, the superiority of cake-fed dung, which lies chiefly in its greater richness in soluble nitrogen, is practically confined to the year of application. The second year benefits slightly, but no advantage is obtained in the third and fourth years. In adding to the humus content and improving the texture of the soil the ordinary dung is in no way inferior.

Further Experiments on this subject are required, but, so far as the evidence goes, it would seem desirable, at any rate on light arable soils where dung is so very necessary, to feed smaller amounts of cake than are usual, and to supplement the dung from less concentrated feeding by the direct use of a nitrogenous fertiliser, which could be applied to whichever crop in the rotation would drive the greatest benefit, instead of employing feeding stuffs as a means of enriching the manure. This advice was sound even under pre-war conditions; at the present time, when the greatest economy in the use of feeding stuffs is essential, only the lowest quantity necessary to get the stock into the desired condition should be employed.

SCARCITY OF POTASH MANURES.

It has already been pointed out that potash is present in greater quantity, and in more available form in the liquid than in the solid portion of the manure. In view, therefore, of the scarcity of potash supplies, the time seems specially opportune for taking measures to avoid wastage of urine. It may be applied, after dilution, to the land direct, or, if this is inconvenient or impossible, it may be soaked up in some absorbent material such as good soil or turf mixed with peat moss litter. Fermentation will ensue, and the manurial value of the compost will be enhanced by the formation of appreciable quantities of saltpetre, a most valuable manure containing large percentages of readily available potash and nitrogen. It may be pointed out that one ton of farmyard manure and one ton of cow urine, each contain about as much potash as one cwt. of kainit.—" Board of Agriculture and Fisheries," Leaflet No 93.

LETTERS TO THE EDITOR.

(The Planters' Chronicle is not responsible for the opinions of its Correspondents.)

Ghandiism Exposed.

Dear Sir,—In your issue of November 5th, you make some very interesting comments under the above heading.

It seems extraordinary that no effort apparently is being made by the Planting Community to counteract the propaganda that is being carried on by the exploiting of labour by clever and unscrupulous persons.

It would be interesting to know why the pamphlet which the U. P. A. S. I. proposed to publish was turned down by the Publicity Board, also why the U. P. A. S. I. Executive did not publish it on their own initiative,

It would also be interesting to know the results of the resolution passed after Mr. Godfrey's most excellent speech on politics at the General Meeting in August last. What are the views of other mofussil bodies who represent Anglo-Saxon communities as to securing direct representation on the Imperial Legislative Council of State? Have their views not yet been received?

I cannot believe that our Estate Labour is blissfully ignorant of all that has been going on during the last few months in Southern India, not to mention other parts of the country, however much they may profess ignorance. A policy of non-interference, silence, or indifference, on our part, will be fatal, whatever may be the conditions. Absolute candour must be the one and only policy with our subordinate staffs and our labour.

I do not hold the opinion that, with the decline of Mr. Ghandi's power and influence, we shall see the end of seditious propaganda in India. There is a great deal more behind all the agitation that is now going on all over the world, against the British Empire, than meets the eye. Concrete proof exists of a close connection between the Sinn Feiners in Ireland, the unrest in Egypt, and India, the revolution in Russia, and anti-British propaganda carried on in the United States, and the Colonies. Neither are these the only countries where unrest exists.

Whatever the future may bring forth, a real danger exists, and it is now more than ever necessary that we should be prepared, and have some definite plans to work on.

Yours faithfully,

"AUFARQUHAM."

Tapping Tasks.

Sir,—It would, I think, be of great help to many rubber growers if you could collect facts and figures, and let us know what is considered the most economical task to give a tapper.

I read the interesting references to the results of tapping twice in your issues of the 25th June and 26th November. In the latter number there was also published a table recording "the minimum quantity of latex which can be profitably harvested", in which tappers' tasks are given, respectively, at 250, 400, and 500 trees, but we are not told which is the best task to give. Perhaps Mr. Ashplant will tell us

(1) the number of trees he thinks a good tapper can do;

(2) whether the task should be spread over morning and evening.

We hear in S. India of some planters giving their tappers the conservative 250 trees of past year; and of others giving tasks ranging from 500 to 1,000 trees. Which is the better plan in the long run?

One can understand that some tappers will do 500 trees much better than others will do 250; but what I want to know is what is generally considered now-a-days the best task to give, *i. e.*, what number of trees a good tapper may be expected to tap properly; and, secondly, what evils result from giving tappers an excessive task to counterbalance, or more than counterbalance, the cheaper costs of tapping per lb.

L. E. K.

The Planters' Chronicle.

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